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A.M.A. CONVENTION • KANSAS CITY, MO. • MAY 11-15, 1936

TREATMENT

The March Number of the "Medical Clinics of North America" is *devoted almost solely to Treatment*—the treatment of those diseases that come frequently into the daily practice of the Family Physician.

There is a *9-clinic Symposium on "Recent Advances in Treatment,"* covering heart disease, arterial hypertension, gonococcal arthritis, rheumatoid arthritis, gout, thyroid disease, scarlet fever and diphtheria, hay fever and asthma, the common gynecologic diseases, the use of vaccines and serums, and dietotherapy.

Then in addition there are *17 other Clinics,* everyone of which gives unusual emphasis to the *treatment* of the disease considered, and many of which are *devoted wholly* to treatment and management.

This is one of the most practical, most clinical numbers of the "Medical Clinics of North America" published in many months. It is a volume of 275 pages of information which the family physician and the specializing internist will find of daily help. It is typical, however, of the kind of material which these books on clinical medicine are now giving subscribers month after month—clinical material which has *trebled* the subscription list.

The March Number comes from the hospitals of Boston.

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RESUSCITATION OF THE NEW-BORN

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AND
KATHERINE KUDER, M.D.
NEW YORK

This study was prompted by the belief that many new-born babies are lost because of lack of proper treatment of asphyxia neonatorum. There has been little determined or concentrated effort to improve the method of accomplishment of normal breathing in its practical and universal application. In many maternity institutions there is still no standardized treatment or teaching of the modern conception of the theory and practice of resuscitation. Even modern textbooks on obstetrics continue to devote space and pictures to demonstrate methods of treatment that are no longer tenable. The names Byrd, Dew, Schultze, Silvester, Laborde and Prochownik belong, properly, to historical medicine.

ASPHYXIA NEONATORUM

The frequency of asphyxial fetal mortality is, indeed, difficult of estimation. Cruikshank [1] reports, after a very exhaustive investigation of postmortem examinations of 800 cases of neonatal deaths, that 68 per cent of these were due to asphyxia neonatorum and "allied conditions." In this study an attempt is made to evaluate with some degree of accuracy the incidence of the varying factors, often causative, sometimes resultant and frequently only coincident. Birth injury, prematurity and developmental defects are often most difficult in their proper allocation. In contrast also with Cruikshank's study we define the neonatal period as fourteen rather than twenty-eight days. It is obvious that accurate inference is not always possible. In this analysis of 216 fetal deaths, eighty-seven of which were neonatal, autopsy showed an incidence of pathologic respiratory conditions in 17.59 per cent. Atelectasis was present in twenty-two of these eighty-seven cases, an incidence of 25.28 per cent. Henderson [2] says that stillborn and new-born deaths due to respiratory complications amount to four in 100.

Asphyxia neonatorum is as descriptive a designation of what occurs when a new-born child does not breathe properly as any that might be used. It is well understood that this condition is due to insufficient aeration or, more properly, insufficient oxygenation of the fetal blood. As Yandell Henderson has pointed out, "the normal baby starts to breathe under essentially the same stimulus that causes an adult to breathe again after holding the breath." The fetus does not breathe in utero because the proper equilibrium of its blood chemistry is maintained by the placental circulation. Fetal blood is too well arterialized to stimulate the fetal neurorespiratory center, which is difficult to excite while the lungs are atelectatic. Occasionally respiratory effort before birth may cause aspiration of a small amount of amniotic fluid, which probably inhibits further respiratory effort and is readily absorbed in the alveoli.

Undoubtedly many reactions and reflexes play a part in the excitation of the neurorespiratory system; the most evident, probably, is contact of air with the fetal skin and the mucous membrane of the airways. Other impulses, such as temperature, heat and cold, gases or liquids, skin irritation, spanking, posture or pain, that is to say, any of the various known peripheral stimuli, may initiate respiratory activity in the new-born.

At any rate, stimulation of the babies' skin and air passages by air normally activates the Hering-Breuer reflex, which determines inspiration and expiration. Oxygen determines the sensitivity of the neurorespiratory system to its specific stimulus, which is carbon dioxide. Extreme deficiency of oxygen in the fetal circulation paralyzes the system, according to Henderson. Oxygen may increase or disappear, while carbon dioxide may also decrease. That there is a great increase in carbon dioxide, as has been supposed, probably is not often the case. The beneficial absorption of carbon dioxide disproves the conception of asphyxia as an acidosis. But that the change of chemical balance exerts a profound influence on the vital centers there can be no doubt. Obviously, the more profound the depression of the sensitivity of these centers, the stronger the stimulus required to excite respiratory activity, as seen when carbon dioxide from 20 to 30 per cent is used.

While there still exist doubt and controversy concerning the chemical nature of the blood in the normal and in the asphyxiated baby and the interchange of gases in normal lung ventilation, pending revision and confirmation of this physiologic activity, the contention of Henderson that the beneficial results of carbon dioxide administration demand its more universal usage in asphyxia should be urged. The insistence of Eastman,[3] Kane and Kreiselman [4] and others that the administration of carbon dioxide increases the "acidosis" of the asphyxiated cannot be reconciled with the clinical phenomena observed by so many.

Henderson describes three types of asphyxia, the apneic, the acarbic and the chronic. The apneic represents an intensive but brief deficiency of oxygen; the acarbic is characterized by a marked reduction of the blood alkali reserve secondary to insufficient carbon

1. Cruikshank, J. N.: The Causes of Neonatal Death, Medical Research Council Special Report Series 145, 1930.
2. Henderson, Yandell: Incomplete Dilatation of the Lungs as a Factor in Neonatal Mortality, J. A. M. A. **96**: 495 (Feb. 14) 1931; Resuscitation, ibid. **103**: 750 (Sept. 8), 834 (Sept. 15) 1934.
3. Eastman, N. J.: Bull. Johns Hopkins Hosp. **50**: 39 (Jan.) 1932.
4. Kane, H. F., and Kreiselman, J.: Am. J. Obst. & Gynec. **20**: 826 (Dec.) 1930.

dioxide stimulus and may show an acid excess; the chronic defines the condition when the respiratory center is depressed by a chronic lack of oxygen.

It might be of value in bringing this problem properly to the attention of the medical profession to emphasize, as Alan Moncrieff [5] has done, that a large part of neonatal deaths during the first month of life might well justify the suggestion that the word "suffocation" is a fairer one. The terms "asphyxia" and "atelectasis" camouflage, rather than define, the true significance of fetal failure to breathe. That the respiratory failure at birth and at a later period of life is essentially the same, both in mechanism of production and treatment, there can no longer be any doubt. When a new-born baby does not breathe normally, it is fair to assume that one of two causes is present: Either there is a central anomaly, such as (1) immaturity, (2) intracranial injury or pressure, (3) chemical depression, due to narcotics, oxygen lack or carbon dioxide excess, secondary to improper arterialization of the center—as found in any circulatory or cord obstruction—or else there is a peripheral abnormality, such as immaturity

TABLE 1.—*Total Clinic Deliveries*

	Infants	Resuscitated
Full term spontaneous	3,651	90 (2.465%)
Full term operative	1,064	115 (10.808%)
Premature spontaneous	100	12 (12.0%)
Premature operative	50	9 (18.0%)
(4,865 infants include 63 sets of twins)		
Resuscitation incidence		
Total infants		4.645%
Full term infants		4.347%
Premature infants		14.0%
Total infantile mortality in clinic		216 (4.439%)
Total infants resuscitated		226
Infantile deaths in group		37 (16.371%)
Stillborn	8	
Deadborn (fetal heart lost just prior to birth)	6	
Neonatal	23	
Infantile mortality		
Includes all deadborn, stillborn and neonatal deaths to fourteenth day of life		
Standard of prematurity		
Weight 1,500 to 2,499.9 Gm., or total length 35 to 44.9 cm.		
Standard of full term		
Weight 2,500 Gm. or over, or total length 45 cm. or over		

of the lung alveoli, developmental deficiency, circulatory failure, or the more common condition of obstruction somewhere in the air passages, which means delayed expansion of the lungs with the attendant improper ventilation.

In those cases of failure due to reasons of central origin, the history and clinical picture are fairly obvious, as, for instance, prematurity, prolonged labor, difficult or instrumental delivery, narcotics, prolapsed cord or congenital heart disease. In this class many babies may be saved.

But it is in the second group, failure due to obstruction in the upper respiratory passages, with which we are most concerned, for herein we believe lies the greatest opportunity to lessen the incidence of neonatal death. The frequency of obstructive material, mucus, amniotic fluid, meconium, vernix caseosa or epithelial débris is evident to every obstetrician and is almost always found in careful microscopic study of infant lungs at autopsy as in the report of Farber and Sweet,[6] in which 88 per cent of 124 unselected babies dying within the first five weeks of life showed aspirated material in the bronchioles and alveoli.

5. Moncrieff, Alan: Lancet **1**: 531 (March 9), 595 (March 16), 664 (March 23) 1935.

6. Farber, Sidney, and Sweet, L. K.: Amniotic Sac Contents in the Lungs of Infants Am. J. Dis. Child. **42**: 1372 (Dec.) 1931.

Another obstructive factor that needs consideration is the intrinsive adhesion of the alveoli in the solid fetal lungs before birth and the natural cohesive state of the bronchioles and bronchi. Coryllos [7] has estimated that the resistance offered by these factors in the dog is equivalent to 14 cm. of water pressure. This resistance, or obstruction to the entrance of air, will vary, of course, with the type of baby; a weakly premature infant will present more resistance than a husky, well developed child. Flaccid atonic structures in the pharynx and larynx may offer obstruction to the free passage of air. Coryllos and Birnbaum [8] have confirmed Keith's [9] impression that the infant lung expands by "opening like a lady's fan" and have found that the effort to maintain normal ventilation of the lung is not as great as that required to initiate expansion. The force required to maintain adequate expansion and normal breath excursions is estimated at from 8 to 10 cm. of water. It is probably true that the forced expiratory effort, as when the baby cries, against a partially closed epiglottis contributes in a large measure to complete dilatation of the alveoli.

It is our belief that a maximum pressure of 25 mm. of mercury can be used with safety in infant resuscitation. The resistance and capacity of the chest walls make the likelihood of overdistention of alveoli very remote. The lack of evident lung trauma in our cases that came to autopsy seems to indicate that more complete expansion and greater pressure would enhance the success in the treatment of asphyxia of the new-born.

DIAGNOSIS OF ASPHYXIA

At birth, the diagnosis of asphyxia is quickly made by failure to observe any attempts at respiration or to note very feeble ones. Pulsation of the cord is usually present, but not necessarily, though the apex beat may be visible. Whether the baby is cyanotic ("livida") or white ("pallida") makes little or no difference. The condition is the same, although, generally speaking, the "white asphyxia" baby presents a more serious problem. Recognition of the fact that the two types may be the result of the same cause makes it obvious that the treatment will be essentially the same. The presence of mucus in the mouth, nose and pharynx may be easily evident. There may or may not be signs of attempted breathing, from an occasional weak gasp to a convulsive inspiratory spasm. Change in color may be seen, blue to white and even occasionally white to blue. Percussion and auscultation of the chest are of questionable value, except in cases in which incomplete expansion may persist over many days, and may even show in an early roentgen examination. Persistent impaired breathing may show the physical signs of pneumonic consolidation. Judging from the frequency with which we find partial atelectasis in neonatal lungs at autopsy, complete expansion of the lungs is a slow progressive process, taking many days, even in normal babies, as Wasson [10] has shown.

Occasionally at birth the baby gives one cry and then immediately stops any further attempt at breathing. This condition is found especially in premature birth and is followed by fetal death unless vigorous resuscitation is instituted at once. When breathing begins

7. Coryllos, P. N.: Am. J. Obst. & Gynec. **21**: 512 (April) 1931.

8. Coryllos, P. N., and Birnbaum, G. L.: Obstructive Massive Atelectasis of the Lung, Arch. Surg. **16**: 501 (Feb.) 1928.

9. Keith, Arthur: Hunterian Lecture on the Mechanism Underlying Various Methods of Artificial Respiration Practiced Since the Founding of the Royal Humane Society in 1774, Lancet, 1909, vol. 1.

10. Wasson, W. W.: A Roentgenographic Study of the Infant Chest as Seen at Birth, J. A. M. A. **83**: 1240 (Oct. 18) 1924.

after treatment it is rapid and shallow, followed by intermittent, weak attempts to cry, but the irregularity of its rhythm is characteristic.

PROPHYLAXIS OF ASPHYXIA

Admittedly, asphyxia neonatorum is often unexpected and unpreventable. Improved obstetric care, however, will lessen the incidence of fetal suffocation. Proper antepartum and intrapartum treatment can eliminate many of the causative factors. The increased and indiscriminate use of medication for the induction or relief of labor undoubtedly contributes not a little to fetal morbidity and even mortality. Operative delivery may either cause or prevent asphyxia; it may be well indicated for the relief of fetal distress or it may be the reason for such distress.

There can be no doubt that prolonged labor, particularly when the membranes rupture early, increases the likelihood of asphyxia. Toxemia, difficult labor, instrumentation, the use of posterior pituitary extract or quinine, the frequent exhibition of sedatives, either narcotic as with opium and its derivatives or depressant as with barbiturates or allied drugs, all tend definitely to increase the incidence of asphyxia. Occasionally cord anomalies, such as knots or prolapse, or premature separation of the placenta, indicate special etiology in individual cases.

The prevention of asphyxia must include the judicious consideration of all these factors. We have analyzed 226 cases of resuscitation that occurred in the obstetric service of the New York Hospital from March 1, 1933, to Dec. 31, 1934. Of 4,865 consecutive births, 226, or 4.64 per cent, required some measure of resuscitation. During this period the fetal mortality was 216, or 4.4 per cent. Of those who died, thirty-seven, or 17.1 per cent, received resuscitation treatment. It is evident that the problem of infant resuscitation is a matter of concern and a necessary attribute to the reduction of infant mortality. In an attempt to evaluate and correlate the factors concerned in asphyxia neonatorum and its prevention and cure a careful analysis has been made.

FULL TERM SPONTANEOUS DELIVERY

Of the total number, 3,651, of babies born at full term by spontaneous delivery, only ninety, or 2.465 per cent, required resuscitation. In this group of ninety there were six fetal deaths, an incidence of 6⅔ per cent.

Primigravidas numbered fifty with four infantile deaths, while there were forty multiparas with two infantile deaths.

Normal pelves were present in seventy of these ninety cases, though there were five infantile deaths. Eight generally contracted pelves showed one infantile death. Other types of abnormal pelves showed twelve infants needing resuscitation, with no infantile deaths.

Left occipito-anterior presentations occurred in forty-four cases in which resuscitation was needed, with four infantile deaths. Thirty-one cases of right occipito-anterior presentations gave an infant mortality of 1. In three cases of left occipitotransverse presentation, one baby died.

Among the complications of pregnancy, two cases of intrapartum infection showed an incidence of two infant deaths, while toxemia of pregnancy (seven infants requiring resuscitation) showed an infant mortality of 1. The cord was about the neck in twenty-one cases requiring resuscitation, with an infant mortality of 3.

In four babies requiring resuscitation, though they weighed less than 2,500 Gm., there was no fetal death. In twelve weighing from 2,500 to 3,000 Gm. there was one infant death. Sixty-four babies weighing from 3,000 to 4,000 Gm. showed a mortality of 4, while in ten cases of infant weight of more than 4,000 Gm. there was one death.

In all but five cases of the ninety deliveries, some form of anesthesia and analgesia was recorded. In the six infantile deaths, anesthesia was administered in all, and morphine also in two.

The membranes ruptured spontaneously in seventy-three of these ninety cases with six infantile deaths, while artificial rupture in seventeen was attended by no infantile death. Four babies died in sixty cases in which rupture of the membranes was known to have been not more than nine hours before birth.

In seventy-five deliveries in which the first stage was less than twenty hours, four babies died, with two deaths in fifteen cases in which the first stage lasted from twenty to fifty hours or over. One infant death occurred among twenty-six deliveries in which the second stage lasted from one to twenty-nine minutes, while five infants died in twenty-seven cases in which the second stages lasted from sixty to ninety minutes or more.

TABLE 2.—*Infantile Deaths in Ninety Full Term Spontaneous Deliveries*

Case	Weight, Gm.	Condition at Birth; Methods of Treatment; Autopsy
1	3,480	No cry at birth; moderate mechanical stimulation, intratracheal technic, medicinal; repeated in nursery later; died at 32 hours Autopsy: Bilateral tear of the tentorium cerebelli; intracranial hemorrhage
2	3,640	Breathed poorly, no cry, repeated mechanical stimulation, intratracheal technic, medicinal, carbon dioxide, oxygen by mask in nursery; given 20 cc. of whole blood; died at 24 hours Autopsy: Tear in falx cerebri; subdural hemorrhage; bilateral bronchopneumonia
3	2,620	No reflexes present at birth, liver large; had mechanical stimulation, intratracheal technic, medicinal; died at 1 hour Autopsy: Partial atelectasis; extradural hemorrhage of cord; pleural and pericardial effusion; ascites
4	4,400	Cyanotic at birth; had mechanical stimulation, intratracheal technic; died at 2 hours Autopsy: Meconium in bronchioles; erythroblastosis; ecchymosis and petechial hemorrhages
5	3,180	Scalp, face and lips cyanotic; prolonged intratracheal technic; stillborn Autopsy: Partial atelectasis
6	3,540	Never breathed, heart beat one minute; mechanical stimulation, medicinal, intratracheal technic for twenty minutes; stillborn Autopsy: Bilateral atelectasis

A brief summary of the six infantile deaths and autopsy are recorded in table 2.

OPERATIVE DELIVERY AT FULL TERM

Resuscitation therapy was done in 115 instances out of 1,064 operative deliveries at full term, an incidence of 10.8 per cent. Of these 115 cases the infant deaths numbered eighteen, or 15.6 per cent.

Eight babies died in the delivery of sixty-seven primiparous mothers in whom resuscitation therapy was instituted. Of forty-seven babies born to multiparous mothers, ten babies died.

In seventy-five cases in which the pelvis was normal, eleven babies died, while in seventeen cases presenting generally contracted pelves, two babies died. Ten cases of generally contracted pelves showed an infant mortality of three.

Five babies died in thirty-six cases of left occipitoanterior presentation, four in eighteen cases of right occipitoposterior and three in twenty-one cases of breech presentation.

The greatest incidence of infantile deaths in the operative group were those of toxemia of pregnancy, in which four babies died in nine cases of toxemia.

TABLE 3.—*Infantile Deaths in One Hundred and Fifteen Full Term Operative Deliveries*

Case	Weight, Gm.	Condition at Birth; Methods of Treatment; Autopsy
1	4,040	Low forceps; heart irregular, did not breathe, cyanotic, convulsions, vomited blood; vigorous mechanical, intratracheal technic for twenty minutes, mask (carbon dioxide, oxygen) 20 cc. of whole blood given; died sixth day Autopsy: Bilateral lobar pneumonia; bacteremia; ruptured brachial plexus
2	3,500	Midforceps; markedly asphyxiated; mechanical, intratracheal technic for two hours; edema of larynx from trauma causing obstruction, given 15 cc. of whole blood; died at 36 hours Autopsy: Wide tentorial tear; partial atelectasis; aspirated amniotic fluid
3	3,000	High forceps; did not breathe for one and one-half hours; all methods of resuscitation used, slow breathing began, clonic contractions; transfusion of 50 cc. of citrated blood; died at 16 hours Autopsy: Fracture of left clavicle; hemorrhage under capsule of thymus
4	3,490	Low forceps; intratracheal technic; infant deadborn (fetal heart lost just prior to birth) Autopsy: Hemorrhage in falx cerebri and tentorium cerebelli
5	3,900	Bag induction, version, extraction; gasped once before complete delivery, fetal heart 50 per minute; placenta praevia; intratracheal technic; stillborn Autopsy: Petechial hemorrhages of scalp
6	4,850	Breech extraction, heart 60 per minute; intratracheal technic for ten minutes; stillborn Autopsy: Bilateral atelectasis
7	3,910	Midforceps; intratracheal technic; deadborn Autopsy: Atelectasis; rupture tentorium cerebelli, bilateral
8	2,850	Low forceps, cyanotic; all methods of resuscitation used; deadborn Autopsy: None
9	3,410	Breech extraction with forceps to aftercoming head, cyanotic; intratracheal technic; deadborn Autopsy: Tentorial tears; hemorrhage into cerebellum and left cerebrum
10	3,900	Midforceps, gasped twice only, shoulders difficult to deliver; intratracheal technic for fifteen minutes; infant died in 15 minutes Autopsy: None
11	3,830	Midforceps; intratracheal technic, no response; deadborn Autopsy: None
12	4,230	Low forceps; intratracheal technic and intracardial atropine; deadborn Autopsy: Hemorrhage into brain and cord; bilateral hydrothorax; no left umbilical artery
13	3,400	Classic cesarean section; no cry, cyanotic; mechanical intratracheal technic, one hour before spontaneous respiration, larynx and trachea mildly traumatized; died first day Autopsy: Pericarditis; pleural and pericardial effusion
14	2,500	Breech extraction, cyanotic, weak cry; mechanical, suction, oxygen by funnel; died at 3 hours Autopsy: Congenital atelectasis; partial absence of kidney
15	4,270	Low forceps, heart 40 per minute, heart lost five minutes after birth; intratracheal technic; stillborn Autopsy: Post-term stillborn fetus
16	2,770	Midforceps, sixteen hours after delivery resuscitated by intratracheal technic; died at 23½ hours Autopsy: Tear of left tentorium cerebelli; hemorrhage into falx cerebri
17	2,830	High forceps, limp, no respirations; intratracheal technic for one hour; 20 cc. of whole blood given; died in 10 hours Autopsy: Subdural hemorrhage in brain and cord
18	3,640	Midforceps, heart heard; intratracheal technic,alphalobin; stillborn Autopsy: Bilateral tentorial tear; subdural hemorrhage

In fourteen cases of cord about the neck, the infant mortality was five. The cord was knotted in one case and prolapsed in four cases without mortality.

Infant weight showed a mortality of six in the group from 3,500 to 4,000 Gm., compared with four in the other groups.

In eighty cases of spontaneous rupture of the membranes there were twelve infantile deaths, while in thirty-five artificially ruptured there were six deaths.

As for anesthesia in thirty-one deliveries, seven babies died when gas and oxygen were administered. Five died when gas, oxygen, ether and some analgesic such as morphine, scopolamine or the barbiturates were administered to thirty-nine mothers.

Three infantile deaths occurred in twenty-seven cases in which the first stage of labor was from one to nine hours and seven in thirty-five cases in which the first stage was from ten to nineteen hours. In eight cases in which labor in the first stage was from forty to forty-nine hours, one baby died. There were eight infantile deaths in forty-one cases in which the second stage was from one to fifty-nine minutes and two deaths in eighteen deliveries in which the second stage lasted 150 minutes or more.

In fourteen cases of breech extraction the infant mortality was two. In thirty-nine cases of low forceps extraction the infant mortality was five. In thirty cases of midforceps extraction the infant mortality was six, and in four cases of high forceps application there were no infant deaths. In eight cesarean sections one baby was lost. Version in five cases was attended by one infant death.

A brief recording of the eighteen deaths in 115 operative deliveries is given in table 3.

PREMATURE DELIVERY

Twenty-one premature babies were delivered in whom resuscitation was done. Thirteen of these died. Three were of seven primigravidas and ten of eleven multiparas. Eight of these babies weighed 1,500 Gm. or less, and five weighed from 1,500 to 2,000 Gm. A brief summary of the thirteen infantile deaths is given in table 4.

TREATMENT OF ASPHYXIA

The actual treatment of asphyxia is based on three fundamental concepts: First, open airways. That is, all obstruction must be removed; mucus, amniotic, meconium or other fluid must be removed by aspiration. Second, insufflation or distention of lung alveoli, which must be brought about. Third, stimulation of the neurorespiratory center with carbon dioxide after its sensitivity has been increased with oxygen.

It is fitting to recall that John Hunter in 1776 used a double chambered bellows, one for suction and the other for filling the lungs, according to Arthur Keith. Monro Secundus passed a catheter into the larynx by way of the mouth. Meltzer [11] and Auer in 1910 introduced the method of intratracheal insufflation, though pharyngeal insufflation was deemed more practical.

In case of long labor, toxemia, prematurity or necrosis or in any case in which fetal distress is diagnosed, preparations for infant resuscitation are imperative. When possible, the first step is the administration of oxygen and carbon dioxide to the mother early in the progress of her labor. At birth the gentle handling of the baby without haste is essential. Holding the baby by the feet with the head low in the air and gentle stroking of the throat toward the mouth will cause the expression of mucus or other fluid and make aspiration less likely. During this time inspection will show the fetal heart impulse and rate. Mild patting of the soles of the feet or placing a gauze-enveloped little finger in the mouth and pharynx in an attempt to remove mucus is occasionally attended by the onset of respiratory effort.

It is well to reiterate that undue haste is harmful. The apex beat and heart action require constant careful

11. Meltzer, S. J.: M. Rec. **92**: 1-10 (July 7) 1917.

observation. There need be no alarm while pulsation is regular and strong. A feeble, intermittent and slow cardiac activity is cause for uneasiness. That irritation of the peripheral nerves, the cutaneous reflexes, as in moderate intelligent patting of the buttocks or soles of the feet, the occasional dorsal slit and retraction of the prepuce, or any pain stimulus is often the initiating excitant of respiratory effort is well understood. Likewise, it is well known that overactive handling and employment of methods of artificial respiration are often traumatic to the point of fatality. The postmortem finding of visceral hemorrhage is a matter of frequent record.

Mention must be made of medicinal treatment of asphyxia neonatorum. Lobeline has been used by us with rather indifferent results. It is undoubtedly a definite respiratory stimulant, but, according to Henderson, Moncrieff, Curtis and Wright [12] and others, it is also a cardiac depressant. It has been used in our series usually when all other efforts have failed, and in no instance have we ascribed success to its use.

Coramine (pyridine-beta-carboxylic acid diethylamide) and icoral (meta-oxy-n-ethyl-diethyl aminoethylaminobenzol-chlorhydrate + meta-oxyphenyl propanolamine-chlorhydrate) have not been used in this series. They, too, are stimulants of the respiratory center with perhaps less depressant action but may induce varying degrees of excitation from restlessness to twitchings or even convulsions. Needless to say, no drug therapy provides the fundamental clearance and patency of the air passages.

While methods of artificial respiration are of some value and should be employed under emergency conditions, it is necessary to emphasize their inefficiency and to stress their danger. Even mouth to mouth breathing may inflict serious injury, as in the fatal case reported by Emmert [13] and referred to by Moncrieff. Methods of forced or positive pressure insufflation with mask and pump are unsound in theory and unsafe in fact. It must be remembered that one is dealing with the baby who is not breathing. In the use of the many ingenious machines conceived for automatic and continuous insufflation, rhythmic alternation of positive and negative pressure, one must not lose sight of their limitations and liabilities.

Apparatus of the types exemplified by Drinker,[14] Kreiselman, Von Wachenfelt and Mollison,[15] or the more modern pulmotor called a resuscitator, are useful for prolonged passive respiration, particularly when insufflation of carbon dioxide and oxygen is incorporated as an essential feature of such instrumentation. Mechanically controlled respiration is not precise, even in expert hands. The rate, rhythm and depth of expiration and inspiration of a new-born baby are most variable. Usually it is not possible to synchronize those factors or to determine just how a baby should breathe. The rate and rhythm are determined by the need of the individual. The blood chemistry exacts its own requirement, and overregulation or underregulation of artificial respiration may well inhibit or impair this function. There is bound to be more or less leakage around a mask. Overdistention of the lungs and inflation of the stomach are obvious probabilities, but the outstanding objection to such mechanical respiration is its failure to insure the first requisite, clear and open airways.

The method of resuscitation that has seemed most valuable to us has been the technic of direct exposure intubation and intratracheal insufflation of 10 per cent carbon dioxide and 90 per cent oxygen under measured pressure, as developed by Flagg.[16] When the mild measures have been unsuccessful, the baby should be placed on its back on a table. It is not necessary for the head to be lowered to 15 degrees from the horizontal, as recommended by Blaikley, nor is it wise for the head to be extended over the edge of the table. With the infant type of direct vision laryngoscope the tongue is easily depressed and the larynx exposed. The pharynx is quickly cleansed of any mucus with the little sucker, and the laryngeal tube is introduced within the vocal cords and well into the larynx. Again, the sucker is used to aspirate any contained matter, mucus or other fluid.

When it is ascertained that all obstructive material has been removed, the laryngeal tube is connected with the gas tube and insufflation is begun.

It is our opinion that there is a distinct advantage in the intermittent control of gas intake and output. An attempt is made not to lead inspiration and expiration but rather to follow the rhythm once it has begun. The continuous positive pressure advised by Blaikley and Gibberd [17] is the exercise of an artificial dominant

TABLE 4.—*Deaths of Thirteen Premature Infants*

Case	Weight, Gm.	Condition at Birth; Methods of Treatment; Autopsy
1	1,690	Classic cesarean section, pallid, weak cry; moderate mechanical stimulation, carbon dioxide, oxygen constantly; transfusion of 25 cc. of citrated blood; died at 9 hours Autopsy: Partial atelectasis
2	1,370	Bougie induction of labor; mechanical, intratracheal technic for thirty minutes, carbon dioxide, oxygen as required; two transfusions of 30 cc. of citrated blood; died on 14th day Autopsy: Atelectasis; edema of lung
3	1,500	Spontaneous delivery; intratracheal technic, difficult; left side atelectasis, diaphragmatic hernia; died at 15 hours Autopsy: None
4	1,310	Spontaneous delivery, cyanotic, no cry; intratracheal technic; died at 3 hours Autopsy: Atelectasis
5	1,110	Spontaneous delivery, all methods of resuscitation used; stillborn Autopsy: Atelectasis
6	1,310	Spontaneous delivery; mechanical, intratracheal technic (placenta praevia); stillborn Autopsy: Atelectasis
7	1,700	Spontaneous delivery; mask (carbon dioxide, oxygen), cyanotic atelectasis, intracranial hemorrhage; died at 3 hours Autopsy: None
8 and 9	1,900	(First twin), spontaneous suction, intratracheal technic; died at 7 hours Autopsy: Partial atelectasis; bilobed right lung
	1,950	(Second twin), breech extraction, cyanotic, intratracheal technic, carbon dioxide, oxygen constantly; died at 7 hours Autopsy: Incomplete atelectasis; bilobed right lung
10 and 11	1,380	(First twin), spontaneous, did not breathe; mechanical; cyanotic; died at 14 hours Autopsy: Atelectasis; bronchopneumonia
	1,375	(Second twin), breech extraction, did not breathe; mechanical; cyanotic; died at 20 hours Autopsy: Bilateral atelectasis; aspiration of amniotic fluid
12 and 13	650	(First twin), breech extraction, intratracheal technic; died at 1¾ hours Autopsy: Prematurity
	820	(Second twin), spontaneous intratracheal technic; died at 1¼ hours Autopsy: Partial atelectasis; prematurity

12. Curtis, F. R., and Wright, S.: Lancet **2**: 1255 (Dec. 18) 1926.
13. Emmert, Fred: The Danger of Mouth-to-Mouth Breathing in Resuscitation of the New-Born Infant, Am. J. Dis. Child. **39**: 1268 (June) 1930.
14. Drinker, Philip, and McKhann, C. F.: The Use of a New Apparatus for the Prolonged Administration of Artificial Respiration, J. A. M. A. **92**: 1658 (May 18) 1929.
15. Mollison, W. M.: Lancet **2**: 868 (Oct. 14) 1933.
16. Flagg, P. J.: Treatment of Asphyxia in the New-Born, J. A. M. A. **91**: 788 (Sept. 15) 1928; Am. J. Obst. & Gynec. **21**: 537 (April) 1931.
17. Blaikley, J. B., and Gibberd, G. F.: Lancet **1**: 736 (March 30) 1935.

control over the interchange of gases, and inhibition of function may result. Rhythmic and conditioned support of respiratory effort is what is needed.

We believe that the practice of this technic has saved babies when all other methods have been or would have been in vain. We know of no baby that has been or might have been saved after failure of this technic, by the employment of any other method.

INJURY DUE TO INTRATRACHEAL TECHNIC

We have endeavored to ascertain the frequency, extent and consequence of trauma resulting from intratracheal insufflation. In the 160 full term babies there was a known incidence of trauma in six cases, or 3.75 per cent. It is probable that injuries were not evident in other cases. In two cases of spontaneous delivery, evidence of abrasion of the pharynx and trachea was apparent, though both babies were discharged well. Of four cases in the operative group, two babies at autopsy showed tracheal trauma and laryngeal edema, one with pericarditis and pleural and pericardial effusion; the other showed a wide tentorial tear, partial atelectasis, and aspiration of amniotic fluid. In the other two babies, both of whom were discharged as well, there were evidences of pharyngeal and tracheal trauma, excoriation and edema. In no case of this series was there proof that the trauma of insufflation was extensive or even a contributing factor in infantile death.

TABLE 5.—*Injury Due to Intratracheal Technic*

Full term spontaneous delivery	
Case 1.	Traumatic tracheitis, bronchitis; discharged well
Case 2.	Abrasions, two, on soft palate; discharged well
Full term operative delivery	
Case 1.	Larynx and trachea mildly traumatized, intratracheal 1 hour; died at 24 hours
	Autopsy: Pericarditis, pleural and pericardial effusion, trachea intact
Case 2.	Pharynx and hard palate excoriated, swollen, oozing fresh blood, pneumonia; discharged well
Case 3.	Edema of larynx from trauma causing obstruction, intratracheal for two hours; died at 36 hours
	Autopsy: Wide tentorial tear, partial atelectasis, aspiration of amniotic fluid, trachea not unusual
Case 4.	Excoriated posterior pharynx, intratracheal for five minutes; discharged well
Intratracheal technic used in 160 full term infants	
Incidence of injury: 6 cases, 3.75% (It is probable that other patients sustained some minor trauma insufficient, however, to cause recognizable signs or symptoms)	

CONCLUSION

More careful study and recording of the factors relative to the incidence, causation and treatment of asphyxia neonatorum should be the continuous duty of every maternity service.

In our opinion, the method of direct exposure intubation and insufflation of oxygen 90-95 per cent and carbon dioxide 5-10 per cent is the treatment *par excellence* because of its ease of application and its beneficent results.

30 East Fortieth Street—520 East Seventieth Street.

Yellow Fever in Laboratory Personnel.—Unusual precautions are necessary to prevent the infection of laboratory personnel with yellow fever virus from infected mice. Three such infections are known to have occurred. We have considered it necessary to limit the personnel working in the rooms in which the mice are inoculated and the brains removed to persons known to have become immune to yellow fever as the result of an attack of the disease or through vaccination.—Sawyer, W. A., and Lloyd, Wray: The Use of Mice in Tests of Immunity Against Yellow Fever, *J. Exper. Med.* **54**:533 (Oct.) 1931.

THE PHILADELPHIA AND ALASKA STRAINS OF INFLUENZA VIRUS

EPIDEMIC INFLUENZA IN ALASKA, 1935

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Influenza occurred in mild epidemic form in a number of cities of the United States during the winter of 1934-1935.[1] In and about Philadelphia the disease was prevalent during December 1934 and January 1935. Adults who had been through the pandemic of 1918-1919, as well as children, were attacked. Characteristically the disease was mild but was followed by malaise and fatigability apparently out of proportion to the acute febrile illness. The clinical picture was typical of influenza. There was leukopenia affecting chiefly the polymorphonuclear neutrophils, and in fatal cases hemorrhagic edema of the lungs. Abstracts of two fatal cases representative of a larger number follow:

CASE 1.—Rachel R., aged 17, admitted to Bryn Mawr Hospital[2] Dec. 14, 1934, died December 16, was a high school girl and had had thirteen previous admissions to the hospital because of diabetes. Three days before death the patient had loss of voice and a cough of the productive type with greenish brown expectoration. The second day of the disease the patient became quite dyspneic and felt as if she were choking. At the same time she had fever, severe general malaise and prostration. On the second day of the disease the patient's temperature was 102.2 F. and the maximum temperature the day of death was 103. The pulse varied from 100 to 130 and respirations from 16 to 24. A white cell count on the third day of the disease showed white blood cells 6,300, metamyelocytes 1 per cent, rod nuclears 50 per cent, polymorphonuclears 28 per cent, lymphocytes 8 per cent, monocytes 11 per cent and eosinophils 2 per cent. On the same day the blood sugar was 140 mg. per hundred cubic centimeters and the carbon dioxide 35 volumes per cent. The roentgenogram of the chest on the third day of the disease showed no evidence of consolidation in the lungs. Owing to the great difficulty of respiration a bronchoscopic examination was performed immediately on admission to the hospital. Five small pieces of thick hemorrhagic mucus were removed and cultures were taken. The patient grew steadily worse and died on the early morning of the fourth day of the disease. An autopsy performed six hours after death showed an acute hemorrhagic tracheobronchitis, a diffuse confluent hemorrhage pneumonitis resembling grossly, in the judgment of the pathologist, the lesions seen in the 1918 epidemic. Cultures showed few pneumococci and few hemolytic streptococci. Haemophilus influenzae was not found. Microscopic examination of the lungs showed intense congestion, serofibrinous infiltration of alveoli with numerous erythrocytes and occasional desquamated endothelial cells, but no polymorphonuclears. Changes typical of an acute hemorrhagic bronchitis were found.

CASE 2.—B. S., admitted to the Hospital of the University of Pennsylvania Nov. 27, 1934, had onset of respiratory symptoms November 23, which had become steadily worse. Physical examination revealed many râles but no definite evidence of consolidation. The temperature ranged from 101 to 104. The patient was placed in an oxygen tent. Examination of the sputum showed no pneumococci. Blood examination showed 70 per cent hemoglobin and 6,200 white blood cells, which fell to 2,400 next day. Citrated blood, 200 cc., was given by veno-

From the Department of Bacteriology, University of Pennsylvania School of Medicine.

1. Collins, S. D., and Gover, Mary: Influenza and Pneumonia in a Group of about Ninety-Five Cities in the United States During Four Minor Epidemics, 1930-35, with a Summary for 1920-35, Pub. Health Rep. **50**: 1668-1689 (Nov. 29) 1935.

2. For this case we are indebted to Dr. Max M. Strumia of the Bryn Mawr Hospital.

clysis. The patient became irrational and died on the evening of November 28. The clinical diagnosis was bronchopneumonia (influenzal?).

Examination of the respiratory tract at necropsy disclosed the following: The mucosa of the bronchial tree was extremely engorged and the lumens of the smaller branches were choked with a mucopurulent exudate. The lungs were heavy; each weighed 700 Gm. Both had mottled, dusky, smooth surfaces, and a crepitant, boggy consistency. The cut surfaces were very wet and dripped copious amounts of serosanguineous fluid. No definite consolidation could be seen, but in many areas a somewhat firmer consistency could be felt.

On microscopic examination of sections from various areas the structure of the lung was found to be obscured by an extensive serous and hemorrhagic exudate containing a varying cell content in different parts of the section. In some areas the alveoli were solidly packed with red cells; elsewhere moderate numbers of large mononuclear cells and polymorphonuclear leukocytes were seen; in still other parts, threads of fibrin were mingled with serous fluid. Secondary invasion of staphylococci had taken place. The mucosa of the bronchi was deeply congested and parts had undergone superficial necrosis.

A virus was recovered by Dr. Thomas Francis Jr.[3] from the sputum of patients in Philadelphia in the acute stage of influenza. This virus produces experimental influenza in ferrets and mice.

The influenza epidemic of the winter of 1934-1935 in the United States was "characterized[1] by its small size, its definiteness in all areas except the Pacific, and the rapidity of its spread. The Middle Atlantic section attained its peak in the week ended January 5, and five neighboring sections had peak mortalities during the succeeding week. The West South Central and the Mountain areas had later and less definite peaks. The largest total excess rates occurred in the East South Central, South Atlantic and Mountain regions."

Seattle did not have an outbreak of influenza in the winter of 1934-1935 but there were sporadic cases.[4] Since Seattle is the gateway to Alaska from the United States, it is probable that the disease was carried to Alaska through that city. Influenza reached southeastern Alaska in the late fall of 1934 and worked its way westward and northward during the winter. Mortality from uncomplicated influenza was not high, but in the associated pneumonias the mortality was great. The statistics reproduced in the accompanying table were kindly furnished in July 1935 by Dr. W. W. Council, Territorial Commissioner of Health.

Influenza and Pneumonia Mortality in Alaska

	Influenza 1935	Pneumonia 1935	Influenza 1918
First division	6	81	92
Second division	10	21	739
Third division	6	36	248
Fourth division	6	32	96
Totals	28	170	1,175

Autopsies coming under Dr. Council's observation were of postinfluenzal pneumonias. These all showed multiple abscesses and many adhesions between the visceral and parietal pleurae.

3. Francis, Thomas, Jr., and Magill, T. P.: Immunological Studies with the Virus of Influenza, J. Exper. Med. **62**: 505-516 (Oct.) 1935.
4. Newsom, Bryan, M.D., C.P.H., assistant to the commisisoner, Seattle, personal communication to the authors.

The isolation of communities during the Alaskan winter afforded an unusual opportunity to trace the means of spread of influenza. The disease followed the lines of airplane travel and can be traced from Fairbanks to Nome, thence to Kotzebue, thence to Point Barrow and thence (doubling back by dog sled) to Wainwright.[5]

Influenza reached Fairbanks on Jan. 15, 1935. There were approximately 500 cases with five deaths, all due to postinfluenzal bronchopneumonia. The Fairbanks epidemic was comparatively mild with few complicating pneumonias, but the estimated mortality from the pneumonias that occurred was about 50 per cent. During the winter months, two or three airplanes fly each week between Fairbanks and Nome.[4] There is also air travel between Nome and Kotzebue approximately every ten days.[5] Influenza began in Nome after the outbreak in Fairbanks and was carried to Kotzebue, where it persisted until the first part of May. There were no deaths in Kotzebue, but the morbidity was high.

Points in Alaska involved in the 1935 epidemic of influenza.

On April 8, 1935, a party of three men[5] left Fairbanks by air for Point Barrow by way of Kotzebue. A stop of several days was made at Kotzebue during the time of prevalence of influenza there. Influenza appeared in Point Barrow on April 15.[5] None of the party contracted influenza. The assumption is that one or more acted as healthy carriers to the Eskimos. The morbidity at Point Barrow was high, with a mortality of fifteen persons, mostly old Eskimos, in a population of about 300. The epidemic started at Wainwright, 90 miles southwest of Barrow, about ten days after it reached Point Barrow, and is attributed to a party of Eskimos who went from Barrow to Wainwright by dog sled. Some of these became ill with influenza on the trip, others after their arrival. There were no deaths at Wainwright, although the morbidity was high

5. Gillespie, Floyd Burke, M.D., Fairbanks, Alaska, personal communication to the authors.

among the 200 Eskimos. The difference in mortality between Point Barrow and Wainwright may have been due to the difference in the treatment of the patients. At Wainwright each patient was required to remain in bed in his own igloo until he recovered. At Point Barrow the patients crowded to the doctor's office every day even when they had high temperatures, some coming over the ice from outlying igloos. Point Hope, which was isolated by its location and little if at all visited during the epidemic period, had no influenza.

At the request of Dr. R. R. Hyde of Johns Hopkins Hospital, Dr. Greist of Point Barrow collected throat washings from influenza patients preserved in 50 per cent glycerin. These were brought out to Fairbanks by Dr. F. B. Gillespie, who gave them to Pacific Alaska Airways for shipment to Baltimore. The virus was recovered from these samples pooled by Dr. Thomas Francis Jr. of the Rockefeller Institute for Medical Research.

Samples of convalescent serum were obtained by Drs. Pettit and Pepper from sixteen Eskimos and one white man at Kotzebue. Three of these patients were 17 years of age or younger. The others were all old enough to have been through the 1918 epidemic, which visited Kotzebue as well as other Alaskan towns. Drs. Pettit and Pepper had been sent by the Department of Bacteriology of the University of Pennsylvania School of Medicine to collect serum and virus, but as it turned out acute cases as a source of virus were not available on their arrival. Their flight to Alaska was in part contributed by the Pan-American Airways in cooperation with the United Airlines and the Alaska Steamship Company. They completed their trip of eleven thousand miles in fifteen days from Newark to Newark. The convalescent serum has been distributed to the several laboratories currently engaged in influenza research. Some has been preserved in "lyophile" form [6] for later test.

Reports of comparison of serums collected in Great Britain with serums from the Philadelphia and Alaska epidemics have been published by Andrewes, Laidlaw and Wilson Smith.[7] Reports of comparison with other serums from America will be published by Francis and Magill.[8] The data obtained lend themselves to the following interpretation:

About half the adults in the British and American urban populations thus far sampled have protective antibodies against the influenza virus at present prevalent in those countries. Those attacked are individuals with less than average humoral resistance; these individuals, however, in early convalescence from attack [3] develop protective antibodies.

The Alaskan influenza virus obtained from Point Barrow in April 1935 has been shown by Francis [9] to be immunologically identical with the virus recovered by him from Philadelphia cases in January 1935 and from the epidemic in Puerto Rico in September 1934.[10] These New World strains appear to be immunologically identical also with strains recovered in Great Britain in 1933, 1934 and 1935 by Laidlaw, Andrewes and Wilson Smith.[11] A virus has also been recovered by Burnet [12] from an epidemic in Melbourne, Australia, in June 1935. This strain is neutralized by high dilutions of horse antiserum against the British W. S. strain. The virus strains recovered from human influenza have been shown to be immunologically related to but not identical with the virus of swine influenza.[13] There is much evidence to suggest that the swine virus may be the pandemic strain of 1918 adapted to swine.[11]

The virus that has been the primary etiologic agent of human influenza in widely separated areas of the world during recent years would appear, then, to be a single immunologic entity. Both active and passive immunization of susceptible animals against this virus have been shown to be possible. These facts should offer profound encouragement for the ultimate control of this last and greatest uncontrolled pestilence and should challenge the best efforts of preventive medicine to perfect practicable means of active and passive immunization before the coming of the next pandemic.

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THE TREATMENT OF CIRCULATORY FAILURE

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For many years it has been taught that in infectious fevers, when the pulse becomes rapid and tends to be thready and the heart sounds become muffled, the heart is failing. Heart stimulants are indicated, for one must support by all means the failing heart. When one turns to textbooks on medicine in the sections on treatment of the various infections one finds it stated that when the heart fails cardiac stimulants should be administered, the chief of which is digitalis in some form. Others, such as caffeine with sodium benzoate, camphor and epinephrine, are mentioned. This idea has been taught for so many years that it has become almost axiomatic. Physiologists have known that this is not true and as long ago as 1899 Romberg and Paessler [1] showed in animal experiments that the heart does not fail even in fatal infections with the diphtheria bacillus, pneumococcus and streptococcus.

When bacteria invade the body and set up disease, certain histamine-like substances [2] are formed, which circulate in the blood. From the work of Dale and Laidlaw [3] it is known that histamine produces arteriolar precapillary contraction with capillary dilatation, a condition known as secondary shock. If the capillary dilatation is great enough, the animal bleeds to death into its own vessels.

The first result of any infection with bacteria is increase in the body temperature, which increases body metabolism. The pulse rate increases slightly or greatly; the blood flow is increased in order to take care of the increase in metabolism. The minute output is greater.

Read before the Medical Society of Milwaukee County, Nov. 8, 1935.

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2. Macleod, J. J. R.: Physiology in Modern Medicine, ed. 7, St. Louis, C. V. Mosby Company, pp. 312-314.

3. Dale, H. H., and Laidlaw, P.: Histamine Shock, J Physiol. **52**: 355 (March) 1919.

The blood pressure may or may not be influenced, but it is apt to be slightly reduced, as the result of mild vasodilatation. The veins are full, return flow to the right auricle is not disturbed, and the circulation becomes adjusted to the abnormal conditions. This is the circulatory response to all mild or moderately severe infections. One does not interfere by giving various drugs, if one is wise, for the body seems fully capable of restoring itself to health without active assistance. The great majority of infections belong to this group. Venous return flow is adequate to produce ventricular filling.

Now, a step further and the infection becomes severe, the pulse becomes more rapid and smaller, the blood pressure drops, the first sound at the apex of the heart becomes faint. These are the usual textbook signs of the failing heart. Now let us ask what has happened. Are these signs of a failing heart or are they signs of peripheral dilatation? Is it conceivable that an organ with such a reserve power as the heart has, an organ that, given oxygen and dextrose and insulin, can beat almost indefinitely outside the body, an organ that beats from before birth to old age, is likely to fail within a few days or weeks? Isn't it much more probable that the explanation for the so-called failing heart is to be found elsewhere than in the heart itself?

Strong muscle contraction depends on the load placed on it. Starling's law is that the strength of a muscle contraction is dependent on the length of the fibers. This holds true unless the muscle is overstretched. Heart muscle is no exception to this rule. The stimulus is always the same, but the strength of contraction depends on the diastolic filling of the ventricles, particularly the left ventricle, with blood. This assumes an adequate, constant venous return flow from the periphery.

The volume of blood in circulation then takes on great interest. The blood in the body is not all circulating all the time, so that what is important is the actual circulating volume of blood. There are huge depots, storage areas, where great quantities of blood can stagnate and be wholly useless as a carrier of oxygen. The liver, the splanchnic area, the subpapillary capillary skin plexus [4] normally are the great storage areas. Under pathologic conditions the lungs can hold out a large amount of circulating blood.[5]

In recent years it has been learned that the one condition common to both primary and secondary shock is decreased circulating blood volume.[6] As Moon has recently tersely stated the problem: "The shock syndrome results from a disparity between the volume of blood and the volume capacity of the vascular system."

Experiments performed by many investigators have shown that in secondary shock there are (1) decreased blood volume, (2) lowered blood chlorides, (3) hemoconcentration and (4) lowered arterial blood pressure. It has been shown that increase in chlorides favors phagocytosis, and this increase may be as little as 0.01 per cent.[7]

Since adequate venous return flow which produces diastolic filling is absolutely essential to good heart contraction, it follows that when the histamine-like substances formed in severe infections produce marked dilatation of capillaries, much blood will be held out of circulation. Further, the toxic products of bacterial action on tissue cells cause increased capillary permeability, so that fluid exudes into the tissues and because of stasis is not reabsorbed.

Thus water is lost in the tissues and blood is concentrated. It follows logically that venous return flow must be decreased, and the heart receives less blood to pump. But the circulation must be maintained. The heart then beats rapidly in order to keep up the minute volume, but a less than normal amount is thrown into the aorta at every systole. The heart beats faster and faster, the pulse becomes smaller and smaller. Severe parenchymatous degeneration, which is largely water imbibition in the cells, takes place, thus further reducing blood volume. The heart now is embarrassed. It is doing its best to keep up the minute volume of the circulation against a dilated periphery and with less forceful beats because the ventricle is not stretched at each diastole. In fact, the heart instead of dilating actually becomes smaller. Now another factor enters the picture. The heart has its blood supply from the coronary arteries. During diastole the coronaries are filled.[8] The only recuperating time of the heart is in diastole. When the heart beats rapidly and weakly because it has less and less blood to force out, the coronaries receive less and less blood and the recovery time for muscle nutrition becomes shortened. The heart must have oxygen and dextrose in order to beat. It is almost impossible to deplete the heart of dextrose, but the oxygen becomes less and less. Anoxemia, lack of oxygen, is the only known condition that produces dilatation of the heart [9] (I am not discussing heart failure in heart disease). Just before death the heart dilates; it gets too little oxygen. The pathologist at autopsy sees the dilated, flabby heart and he has said for years that the heart is dilated in acute infections. He is wrong. As long as there is during life sufficient venous return flow, sufficient oxygen for the heart, the heart does not dilate. Dilatation is the antemortem failure of the heart caused by collapse of the peripheral circulation.

When Romberg and Paessler [1] showed in 1899 that the functional capacity of the heart was not materially changed in severe experimental infections they thought that vasomotor tone was lost. Since then many investigators have shown that there is no loss of vasomotor tone. The absolutely essential factor is decreased circulating blood volume due to stasis in the storage areas and transudation into the tissues as the result of increased capillary permeability.

Many physicians have seen the lungs in a case of rapidly fatal influenzal pneumonia. They are enormous, do not collapse, and are so full of fluid that they drip when taken out of the thorax. One can wring water from them as one wrings water from a soaked sponge. Everywhere are petechial hemorrhages showing capillary damage. Underhill [10] found that in the influenzal pneumonia patients the blood concentration was so great that hemoglobin estimations as high as 140 per cent were not infrequent. How can the heart carry on the circulation when the blood is so concentrated that it cannot flow back into the ventricles in sufficient quantity to stretch them?

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PATHOLOGY

Congestion of abdominal viscera and increased moisture in the various organs have been repeatedly observed by prosectors in the bodies of persons dying of all types of infection. The significance of the increased wetness has not been sufficiently appreciated. In both experimentally produced secondary shock and in that of death from infections, similar microscopic observations are made. There are marked dilatation and engorgement of the capillaries and venules in all the organs, particularly the intestine. Tissue edema is present in greater or lesser degree and petechial hemorrhages show capillary damage. The capillaries would appear to be more permeable to fluid transudation. Loss of fluid produces hemoconcentration. Moon [5] says:

> The shock syndrome results most frequently from dilatation of capillaries and venules plus leakage of plasma through capillary walls whose permeability has been increased. This feature has been present in shock from diverse causes. In the experiments which produced low blood pressure by simple vascular dilation without capillary injury, shock did not result. A simple loss of blood or of plasma, the vascular walls remaining normal, does not progress but tends to restoration by physiologic processes. Fluid is absorbed from the tissues, or that supplied therapeutically is retained in the circulation. In shock the reverse is true. Fluid is neither absorbed nor retained and further loss by vomiting, diarrhea, effusion and by edema is progressive.
>
> One concludes that increased capillary permeability is an essential factor in the mechanism by which shock progresses.

TREATMENT

Since the heart itself does not fail but the peripheral circulation collapses and blood volume and venous return flow to the heart are lessened, the logical treatment would be to increase the blood volume or venous return flow in any way possible. There are three methods by which one may theoretically accomplish this end: (1) postural or mechanical, (2) by employing fluids intravenously, (3) by employing drugs that act on the peripheral vessels, either to constrict them or to decrease capillary permeability or both.

1. Many years ago I [11] could show that in typhoid, when the pulse became rapid and of low volume, elevation of the foot of the patient's bed was often sufficient to reduce the pulse rate and increase the volume. When the pulse became faster and smaller I used to bandage the legs from the ankles to mid thigh. This too seemed to be helpful in some cases. At that time (1910-1912) little was known about blood volume and peripheral collapse but it seemed to me that the heart was not getting sufficient blood in venous return flow. Bandaging of the legs was purely empirical. It has since been shown (Wollheim) that one can increase the circulating blood volume 1,000 cc. by this procedure. The postural treatment can obviously be used only when patients are comfortable, flat on their backs. In people ill with typhoid this treatment was satisfactorily used.

2. One would consider, immediately on being told that blood volume should be increased, that intravenous administration of isotonic fluids should be used. This appears to be good reasoning. What should one use and how much? One should bear in mind that the normal resting body loses from 2,500 to 3,000 cc. in twenty-four hours. Sweating, vomiting, diarrhea and increased respiratory rate cause greater loss, so that from 1,000 to 2,000 cc. daily is frequently not enough to make up water loss. We live in water and we should appreciate the deleterious effects of dehydration. As there is a tendency to lessened chlorides in the blood, salt solution is useful. As patients who are so ill that they need intravenous treatment do not take much by mouth, 10 per cent solution of dextrose is useful. There is one flaw in this treatment. When the peripheral collapse is so severe that capillary permeability is increased, salt solution tends to pass out of the circulation and further to increase the tissue edema. Dextrose does not pass out so rapidly. In cases of severe collapse 50 cc. of 50 per cent dextrose is more logical treatment than 250 cc. of 10 per cent dextrose; the latter may pass out of more permeable capillaries and increase edema of the lungs. Acacia solution has been recommended. I have had no personal experience with it. I have been afraid to use it. Recently some work has been published which has shown that acacia often is harmful.

Some physicians like Ringer's solution better than physiologic solution of sodium chloride. If there is much vomiting and diarrhea, it would be a preferable solution to use.

Since it is wished to increase blood volume and to prevent transudation of fluid into the tissues, the most efficacious fluid to use is blood. Blood transfusion, in my opinion, has no value in introducing any curative substances to combat the infection. Its sole effect is to increase the effective circulating blood volume and thus give support to the heart. The proteins of the blood keep up the osmotic pressure within the capillaries so the fluid is not so easily lost to the tissues. Further, it dilutes the blood in circulation and reduces hemoconcentration. It prolongs the time for the body to make its own antitoxins or other immune substances. I cannot see that it makes any difference whether one uses whole uncitrated blood or withdrawn citrated blood. If one can neutralize the toxins of any infection by the use of antitoxin, the capillary transudation ceases, fluid is again normally reabsorbed, blood volume is increased, venous return flow is increased, and the heart becomes slower and beats more forcefully. The infection is overcome, the patient is cured.

3. It has been my experience that as soon as a hospital intern is called to a febrile patient, especially following some operation, whose pulse is becoming rapid, he orders digitalis (usually digifolin) or caffeine with sodium benzoate. He is following his textbook or his teachers; one cannot blame him.

Digitalis has its very definite place in heart disease. No drug is so useful. But when there is no heart disease digitalis has no place in the doctor's armamentarium. Digitalis does stimulate the heart to increased contraction, it tends to keep the heart muscle from overdilating and it acts on the vagus endings under certain conditions. However, those effects are not useful to the patient whose peripheral circulation is in collapse. Further digitalis is potentially harmful because it decreases blood volume (Wollheim). Surely digitalis is not the drug to use in acute infections.

Caffeine with sodium benzoate is a favorite drug. Sollmann and Pilcher [12] have shown that caffeine is a vasodilator acting as an inhibitor of vasoconstriction. This does not appear to be a useful drug.

Metrazol and coramine are two new so-called heart stimulants. I am not convinced that either is of any real value; besides, we do not want heart stimulants.

What we most want is some drug that will (1) tend to increase blood volume, (2) stimulate oxidative processes, (3) increase phagocytosis and (4) decrease capillary permeability. Have we such a drug? Possibly

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12. Sollmann, Torald, and Pilcher, J. D.: The Action of Caffeine on the Mammalian Circulation, J. Pharmacol. & Exper. Therap. 3: 19, 1911.

we have not the ideal drug, but the drug which has all these actions is strychnine. I have used it for many years, used it in relatively large doses, from one-twentieth to one-fifteenth grain (0.003 to 0.004 Gm.) hypodermically every two to three hours. During the influenzal pneumonia epidemic of 1918 I felt that I saved lives with it. Professor von Jagic in his recent book says that he used it extensively in influenzal pneumonia and found it most efficacious. Others have used it in various infections. I can highly recommend it.

Two other drugs are useful in constricting capillaries. These are epinephrine and pitressin. The former acts through the sympathetic nerves on the muscle walls of the arterioles, and its action is transient. It is most useful in sudden collapse. The latter acts on the muscle walls directly and has a more prolonged action. Hartl [13] injected pitressin into men and studied its effect on the circulatory and respiratory systems. There was found an increase in the systolic and diastolic blood pressure, in peripheral resistance and in amplitude of the pulse with augmentation in the ventilation of the lungs. There was a lessened membrane permeability and an increase in the oxygen debt during work. It is said that the effect of a hypodermic injection lasts from two and a half to three hours. It is the better peripheral stimulant. It can be given in doses of from 0.5 to 1 cc. hypodermically every three hours.[14]

Whenever there is cyanosis, be it in pneumonia or any other serious bacterial infection, oxygen should be given in sufficient quantity to reduce the cyanosis. The nasal catheter method, now so generally employed, is as good as or better than the tent method. Oxygen properly administered not only reduces cyanosis and hence reduces anoxemia but slows the heart, lowers the temperature and probably, by reducing anoxemia in the tissues, decreases capillary permeability, thus reducing transudation into the tissues.

SUMMARY

It is not the heart that fails in acute infections; the peripheral circulation collapses, so that the heart has no blood finally to pump. The condition is analogous to secondary shock.

The heart usually becomes smaller in acute infections until just before death, when it dilates because of anoxemia.

Digitalis is not a useful drug in these cases of peripheral circulatory failure.

Measures to increase blood volume such as intravenous administration of sufficient quantities of physiologic solution of sodium chloride, dextrose or Ringer's solution or direct or indirect blood transfusions should be used. Drug therapy, up to the present time, is limited to strychnine, pitressin and epinephrine.

Whenever there is evidence of anoxemia (cyanosis of the nail beds, and so on) oxygen should be given in sufficient quantities to overcome the cyanosis.

Patients with severe infections cannot all be saved, but it is believed that more can be saved by using the procedures outlined than by the methods still described in textbooks.

425 East Wisconsin Avenue.

13. Hartl, K.: Action of Pitressin upon Circulation and Respiration, Arch. f. exper. Path. u. Pharmakol. **173**: 133, 1933.

14. Charles M. Gruber and William B. Kountz (Some Observations on the Effect of Pitressin upon the Cardiovascular System, J. Pharmacol. & Exper. Therap. **39**: 435 [Aug.] 1930) obtained vasoconstriction of coronary arteries in normal rabbits, frogs and dogs with pitressin in the perfusion fluid. Also pitressin produced increase in volume of the dog's heart when it was injected intravenously. This does not mean that the heart of a patient who is ill with some acute infection will necessarily react in the same way as the heart of a normal dog. Pitressin has seemed to be a valuable drug in cases of peripheral collapse in infectious fevers. Possibly patients have recovered in spite of, not because, of its use.

INTESTINAL OBSTRUCTION DUE TO A HOLE IN THE MESENTERY OF THE ASCENDING COLON

PASSAGE OF DESCENDING COLON AND SIGMOID THROUGH DENSE RING IN MESENTERY OF ASCENDING COLON

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In an article on acute intestinal obstruction due to mesenteric defects, requiring massive resection, Edwards [1] says "The passage of a loop of small bowel through this abnormal opening in the mesentery is probably the rarest of all factors responsible for intestinal obstruction."

Edwards reports that "Brown [2] in 1920 summarized twenty cases of this malady, and Cutler [3] in 1925 tabulated data concerning these cases and eight others." Edwards also refers to cases recorded by Elston,[4] McWhorter,[5] Judd [6] and Hamaker [7] and says "The opening is usually just mesial to the artery supplying the terminal part of the ileum, the appendix and the first portion of the cecum. This accounts for the fact that the terminal part of the ileum and the cecum are not included in the gangrenous process."

Edwards then reports two cases coming under his care. In each extensive resection was necessary. Both patients recovered. His article is well worth reading. His conclusions are as follows:

1. Abnormal openings in the mesentery are rare.
2. They are usually of congenital origin.
3. Injury has not been demonstrated as an etiologic factor in many instances.
4. The openings are most frequently located in the mesentery to the ileum within 2 or 3 inches of its junction with the cecum.
5. When intestinal obstruction results, massive resections are likely to be required.
6. Early diagnosis of intestinal obstruction and immediate operation will reduce the mortality.

On only one other occasion have I seen intestinal obstruction due to a hole in the mesentery. This was during my intern days at the Toronto General Hospital. The patient was an elderly man who was suffering from an acute obstruction. The waiting policy was the rule in those days. The patient lived for nearly a week.

At autopsy a hole was found in the mesentery of the small intestine and through this a loop of small bowel had passed. The incarcerated bowel showed little change and, even at autopsy, could be drawn back with ease.

According to Edwards, there were only two cases in which obstruction of the large bowel occurred, those of Judd and of Hamaker. In the present case there was a ringlike opening in the mesentery of the ascending colon. This ring was about 2 cm. in diameter and its walls were very firm. Redundant descending colon

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2. Brown, H. P., Jr.: Intraperitoneal Hernia of the Ileum Through a Mesenteric Defect, Am. J. Surg. **72**: 516, 1920.
3. Cutler, G. D.: Mesenteric Defects, Boston M. & S. J. **192**: 305 (Feb. 12) 1925.
4. Elston, Lynn W.: Intra-Abdominal Hernias, with Report of a Case, J. Indiana M. A. **19**: 157 (April) 1926.
5. McWhorter: Ends of Omentum Fused Through Opening in Mesentery, S. Clin. North America **8**: 533 (June) 1928.
6. Judd, J. R.: Mesenteric Defects, Surg., Gynec. & Obst. **48**: 264 (Feb.) 1929.
7. Hamaker, W. D.: A Unique Case of Bowel Obstruction, J. A. M. A. **62**: 204 (Jan. 17) 1914.

and sigmoid passed over to the right, passed through the ring-shaped opening, could not get back and became obstructed. Extreme tension of the mesentery of the distended bowel by pressure had produced blockage of the vessels of the lower portion of the ileum and had caused death of more than 5 feet of the distal portion of the small bowel, so that not only obstruction

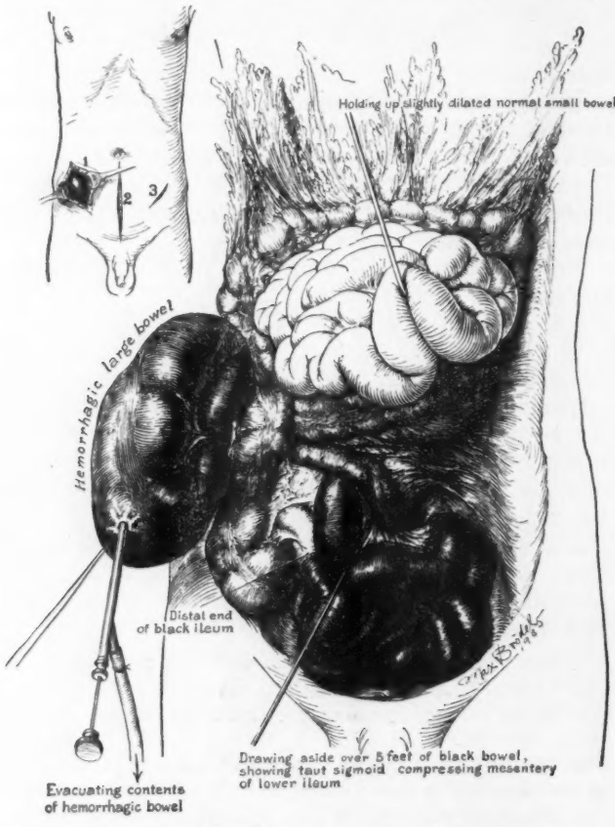
Holding up slightly dilated normal small bowel
Hemorrhagic large bowel
Distal end of black ileum
Drawing aside over 5 feet of black bowel, showing taut sigmoid compressing mesentery of lower ileum
Evacuating contents of hemorrhagic bowel

Fig. 1.—Intestinal obstruction due to a hole in the mesentery of the ascending colon: general view of the abdominal viscera as found at operation. The small picture at the upper left shows the three incisions made during the operation. Incision 1 was a gridiron incision made for removal of the appendix. Black bowel, large size, appeared, whereupon the midline incision (2) was made. Incision 3 was made at the end of the operation and the sigmoid attached at that point, to be opened later if necessary. The large picture is a semidiagrammatic representation of the abdominal condition as found at operation. The large hemorrhagic bowel proved to be a loop of descending colon and sigmoid flexure passing through a dense hernial ring in the mesentery of the ascending colon. This caused marked tension on the mesosigmoid, resulting in constriction of the terminal mesentery of the small bowel, sufficiently severe to cause stasis of its circulation and resulting in the destruction of more than 5 feet of small bowel, to a point within a few centimeters of the ileocecal valve. This black bowel is shown filling the pelvis, while the normal bowel, light in color, is drawn upward.

of the large bowel but also necrosis of much small bowel had to be dealt with.

I am indebted to my friend Max Broedel for his schematic illustrations and for the clear manner in which he shows the most likely cause of the rapid necrosis of so much small bowel.

REPORT OF CASE

History.—Shortly after 8 on the morning of Feb. 5, 1935, Dr. Harry Wilson of Baltimore asked me to see his son, who was 11 years old. The boy's general health had always been excellent and he never had had any serious illness. The only past symptoms that might be connected with the present illness were four or five attacks of abdominal pain of short duration, which were always relieved by vomiting. These attacks had been scattered over a period of two or three years and were thought to be due to indiscretions in diet.

For several years he had complained of pains in the right side of the abdomen after running, and of pains in his legs after any strenuous exercise.

Three months before, after playing football, he complained of rather severe pain in the lower part of his abdomen. This, however, lasted only five minutes.

Although he was accustomed to violent exercise in various forms, it was noted that after this attack he was less inclined to participate in any strenuous play. This, he said, was due to the fact that his legs hurt him and became tired afterward.

During the past three months he had appeared tired and on occasions, without apparent reason, had turned pale and even become "fainty." However, he had usually looked well, had eaten and slept well, and had had normal bowel movements without laxatives.

One month before, after a long bicycle ride, he became very faint and the next day had an acute attack of abdominal cramps, which lasted about half an hour. These were relieved by vomiting.

On the day before I saw him he had taken no unusual exercise, had eaten moderately and had had a normal bowel movement before retiring at 9 p. m.

At 1 a. m. he was heard to be "sleeping heavily and snoring in an unaccustomed manner." He awoke about 2:30 a. m. with moderate pains in the abdomen. These gradually became worse, but he did not report to his parents until 6:30 a. m. Dr. Wilson said that at this time the pains were rather acute, paroxysmal in character and generalized. The temperature was 99 F., the pulse 90. There was no localized tenderness and no muscular rigidity. Some nausea was present and the boy made several attempts to vomit. Enemas were ineffectual except in bringing away a slight amount of mucus.

I saw the boy with Dr. Wilson at 8:30 and we both agreed that he should be sent to the hospital at once.

Operation and Result.—The operation was performed at the Church Home and Infirmary at 9 o'clock. Since the symptoms suggested an acute appendicitis, a gridiron incision was made and bluish black bowel was at once encountered. Immediately a midline incision was made and a hole about 2 cm. in diameter

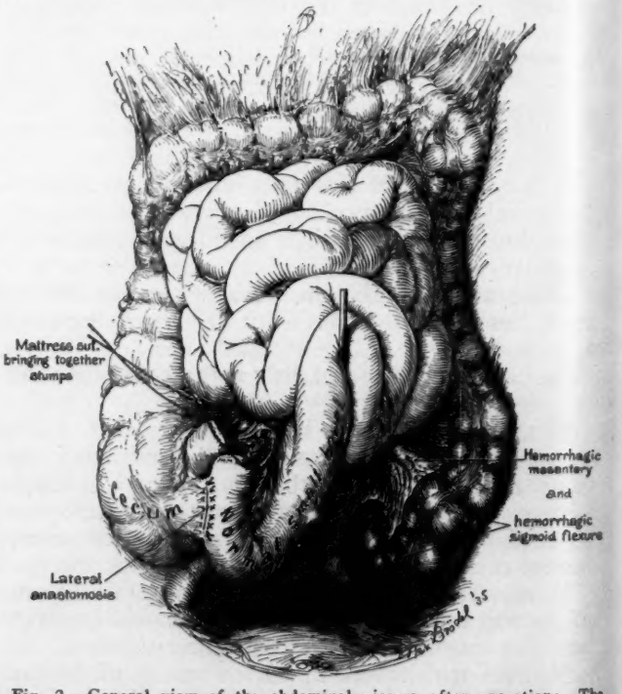

Fig. 2.—General view of the abdominal viscera after operation: The evacuated hemorrhagic loop of sigmoid was temporarily laid aside in order to determine to what extent it would recover. The gangrenous small bowel was then removed, the ends were closed, the appendix was removed as it was in the way, and a lateral anastomosis was made between the small bowel and the cecum. The two stumps of small bowel were covered over by approximation sutures, as indicated. By this time the hemorrhagic sigmoid, with its mesentery, had apparently recovered to such an extent that it was considered wiser to leave it alone. It was, however, stitched to the peritoneum of the gridiron incision on the left (incision 3, fig. 1), to be opened later if necessary.

was found in the mesentery of the ascending colon. Through this a loop of large bowel had passed and had become markedly distended (fig. 1). The mass was bluish black and could not be drawn back because of the accumulation of fluid. Accordingly

a purse-string suture was placed at the most distended part of this loop and a small trocar was then introduced. The contents were rapidly emptied; they consisted in large measure of blood. The purse-string was immediately tied and then reinforced with three or four mattress sutures. Not one drop of the bowel contents escaped.

The loop of formerly distended bowel was now readily drawn back through the opening in the mesentery and was then pushed over to the left, because there was evidence of further trouble in the abdomen.

A large amount of the small bowel was black, but the peritoneal covering was still smooth and glistening. This black portion was followed upward until normal bowel was reached again. At this point there had been some constriction. We then clamped doubly, cut across the bowel with a cautery and removed the small bowel until a normal portion was again reached at a point within a few centimeters from the cecum. The removal of the bowel suggested very strongly the way in which the bowel is removed at autopsy. It had to be done very rapidly.

A physician who was watching the operation, wishing to determine just how much bowel had been removed, lifted it up, and even in its convoluted form it was over five feet in length.

Both ends were closed and the appendix was then removed, as it was in the way. A lateral anastomosis was made between the small bowel and the cecum (Fig. 2), the opening being rather smaller than usual, so that the contents of the small bowel would not pass too rapidly into the cecum.

An examination was then made of the redundant descending colon, which had been herniated through the mesentery. Its color was infinitely better, and although the mesentery of this area showed a good deal of hemorrhage, it seemed wiser to let well enough alone (fig. 3). This part of the bowel, however, was brought up to a left gridiron incision and tacked to the peritoneum so that it could be opened promptly if necessary, and so that the sigmoid was fixed in such a way that it could not possibly get loose and again pass through the ring in the mesentery of the ascending colon. The margins of the ring were so hard and so rigid that the ring could not be closed.

One cigaret drain was left in the lower portion of the midline incision. The gridiron incision on the right and the gridiron incision on the left were closed.

At the beginning of the operation the outlook seemed hopeless, but the patient stood the operation fairly well. At the end of the operation his pulse was fair although rather rapid; it was 136.

Postoperative Progress.—As the outlook in this case necessarily was not good, the postoperative course is recorded somewhat in detail.

February 5 the patient was given 700 cc. of 10 per cent solution of dextrose intravenously in the operating room. He was returned to his room and given 400 cc. of citrated blood intravenously. Intramuscular infusion of physiologic solution of sodium chloride was started and 350 cc. was absorbed. The patient came out of the anesthesia in good condition. His pulse varied from 124 to 146 but was strong and of good quality. His temperature during the day varied from 102.6 to 103.6 by rectum. Codeine was used as a sedative.

February 6 the patient had a fairly comfortable night. As he was beginning to have some abdominal distention, the rectal tube was passed at intervals and bloody mucoid material obtained. This procedure gave relief. Ward inhalations were started because of the cough which the patient had had before operation and which had become worse. The temperature during these twenty-four hours varied from 101.6 to 105 by rectum. The pulse varied from 124 to 148 but was of good quality. Seven hundred cc. of 10 per cent solution of dextrose and physiologic solution of sodium chloride was given intravenously in the morning and repeated later on in the day.

February 7 the patient had been more comfortable except for mucus in the throat from pharyngitis and bronchitis. Severe upper abdominal distention was relieved by the passage of the intranasal stomach tube twice during the day; each time a large amount of gas and dark green fluid was aspirated. The patient refused to allow the tube to remain in place all the time but had no objection whatever to its introduction as often as was necessary. The rectal tube was passed several times and a bloody mucoid material was obtained. A small amount of flatus was expelled through the rectal tube on one occasion. The pulse was between 108 and 124, and the temperature between 99.2 and 100.6 by mouth. The general condition was greatly improved except for the recurrent distention of the stomach and the mucus in the throat. Seven hundred cc. of 10 per cent solution of dextrose and physiologic solution of sodium chloride was given intravenously at 3 a. m., 9 a. m., 5 p. m. and midnight.

February 8 the patient was expelling large quantities of gas by rectum. There was no bloody discharge from the rectum. The abdominal distention was relieved by the passage of the stomach tube on two occasions. The patient was given small amounts of liquid by mouth. The pulse varied from 118 to 94, the temperature from 99.8 to 100.6 by mouth. Seven hundred cc. of 10 per cent solution of dextrose and physiologic solution of sodium chloride was given intravenously at 2:30 and at 10:30 p. m.

February 9 the patient had had a very comfortable night. He expelled gas freely and had a normal, formed stool. He was given liquid diet in small amounts and also a small piece of beefsteak. His pulse was 92; the temperature ranged between

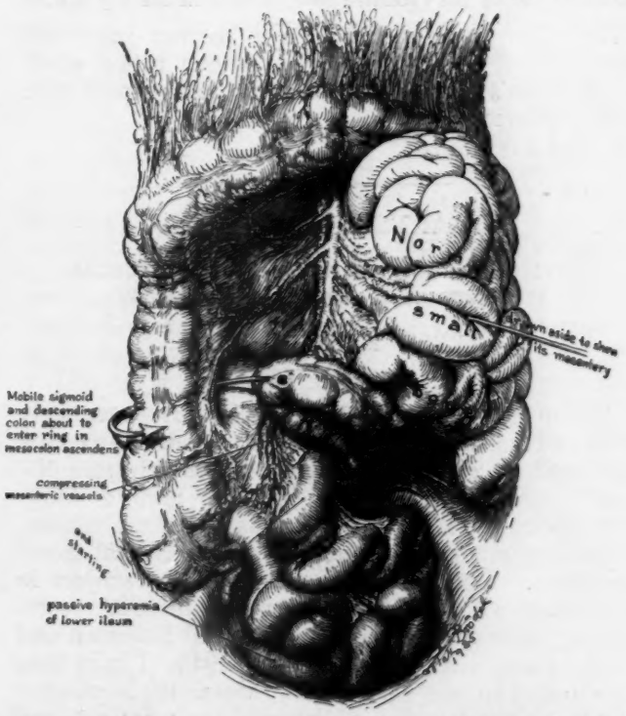
Nor
small
Mobile sigmoid and descending colon about to enter ring in mesocolon ascendens
compressing mesenteric vessels
and starting
passive hyperemia of lower ileum

Fig. 3.—Diagrammatic representation of the probable cause of the speedy destruction of more than 5 feet of small bowel: It seems obvious that the chief factor was the ring-shaped opening in the mesentery of the ascending colon (shown by arrow) where the fusion of the embryonic large bowel and its mesentery with the parietal peritoneum had remained incomplete. Any ring of such a character in the abdominal cavity is a potential source of danger, threatening intestinal obstruction. Another factor was the marked mobility, redundance and laxness of the descending colon and sigmoid. Under ordinary circumstances, this bowel could never have reached the ring. It is a wonder that the small intestine was not caught on some occasion, but the ring was probably large enough to permit a normal, small intestinal loop to slide in and out without getting caught. Glance at the vessels in the mesentery of the small bowel as they pass beneath the loop of large bowel which is to follow the arrow out through the ring beneath the ascending colon, to become constricted and distended as indicated in figure 1. The more it was distended, the more taut became its mesentery. This taut mesentery caught the mesenteric vessels of the terminal ileum as in a vise, affecting the venous circulation more than the arterial, thus causing passive hyperaemia and then death of the small bowel. This vise consisted of the taut mesentery of the sigmoid on the one side and the resisting lumbar vertebrae and the sacral promontory on the other.

99.4 and 100.6. Seven hundred cc. of 10 per cent solution of dextrose and physiologic solution of sodium chloride was given intravenously at 11 a. m. and 7 p. m.

February 10 the patient was much improved and was taking liquid diet well. To this lactose was added; he also had buttered toast and milk shakes. He was passing gas and fecal matter by rectum. The dressing was changed and the drain shortened. The pulse range was from 88 to 96. The temperature was from 99 to 100.4 by mouth. At 5 p. m., 800 cc. of 10 per cent solution of dextrose and physiologic solution of sodium chloride was given intravenously.

February 13 the patient's condition was still improving; all black stitches were removed.

February 17 the patient had a formed stool; the silkworm-gut stitches were removed. A wet dressing was put on the incisions, as there was a small amount of purulent discharge.

February 22 the patient was up and walked.

February 26 the patient was discharged in excellent condition. His incisions had healed completely.

Nov. 10, 1935, Dr. Wilson told me that his son had been in good health ever since leaving the hospital. It is with much difficulty that he curbs the boy's desire to take part in strenuous athletics. Now and then the boy will look a little pale for a moment or have a slight feeling of faintness. He has always been fond of fruit but now he craves it. He will eat six apples at a time and if a can of pineapple is within reach, he will finish it at one sitting. He is now (says Dr. Wilson) making unusual progress at school. The patient's bowels are regular and the stools normal, but following the formed stool there is very occasionally a little diarrhea, which Dr. Wilson thinks can be accounted for by the excessive amount of fruit the boy eats.

As I look back on this case it becomes more and more evident that Dr. Wilson's prompt action saved his only son's life. Delay of a few hours would have told a different story.

25 East Eager Street.

PERIARTERITIS NODOSA

WITH REPORT OF CASE SHOWING UNUSUAL FEATURES AND APPARENT RECOVERY

LYLE MOTLEY, M.D.
MEMPHIS, TENN.

Kussmaul and Maier[1] in 1866 first accurately described a definite inflammatory disease of the medium and small arteries. Since then this relatively rare disease has been reported at intervals until a fairly voluminous literature has accumulated on the subject, containing reports of extremely varied clinical manifestations. Ophüls,[2] in an article on the subject in connection with the report of a case in 1923, found seventy cases recorded to that time, and Rothstein and Welt[3] found 195 cases recorded to 1933. I have been able to find an additional twenty cases in the literature.[4] While a critical review of some of the cases reported might leave some doubt as to their being true periarteritis nodosa, since other vascular lesions can be confused with those of this disease,[5] nearly all the cases reported so closely conform in their pathologic characteristics that there is little doubt that the disease exists as a pathologic entity.

PATHOLOGY

The changes consist of an inflammatory process involving, in different stages and in different degrees, all the coats of the medium and small arteries with perivascular inflammatory changes. In all the cases there is a marked infiltration of the vessel walls with polymorphonuclear neutrophils and to a lesser extent with lymphocytes. Extensive vascular and perivascular infiltration with eosinophils has been reported at times, as in Ophüls'[2] case and my first case. There is exudation and later necrosis resulting in aneurysm and thrombosis, and frequently the small aneurysms rupture, causing either frank hemorrhage or hemorrhagic extravasation. When the process extends to the intima the smaller vessels become occluded. Marked involvement of the veins has been noted, though only rarely.[6] Multiple aneurysms apparently are very pronounced in some cases and almost absent in others.[7] The interference of blood supply by vascular occlusion causes secondary pathologic changes in various organs and tissues, characterized by necrosis, infarction, fatty degeneration and the like, the character and extent of which determine the symptoms referable to these organs.[8] Almost any secondary tissue changes can occur, such as the unusual and marked involvement of mucous and serous membranes reported in one case.[2] Bony tissue apparently is almost free from involvement, though this has been reported at least once.[9] However, some systems are decidedly more frequently involved than others, and the kidney seems to be the organ most often involved, appearing as high as 80 per cent in one series studied.[10] An exhaustive discussion of the different types of pathologic changes appear in Arkin's article.

ETIOLOGY

To the present time the etiology is unknown though generally considered of infectious nature.[11] Of the various organisms considered, the streptococcus has been implicated more frequently than any other, though the possibility of the disease being of syphilitic nature has been seriously considered by several writers. The failure of the disease to respond in any definite degree to antisyphilitic treatment and the inability in any instance to demonstrate the spirochete within reason eliminate syphilis as a cause. Much experimental work has been done. Vasiliu and Iriminoiu[12] isolated a nonhemolytic streptococcus from involved tissues but were unable to reproduce the disease in animals. Harris and Friedrichs[13] in a series of animal experiments concluded from positive results that the cause

From the Department of Medicine, University of Tennessee College of Medicine.

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is a filtrable virus. Von Haun,[14] by inoculation of material from human cases, produced the arterial changes of the disease in animal experiments, but no organisms could be recovered from the diseased animals. Carling and Hicks[15] repeated Von Haun's experiment with negative results. By inoculations of material from five cases Franz[16] failed to transmit the disease to animals and believed it not a specific disease but secondary to many different infections. By blood and tissue cultures, various organisms have been recovered by different workers from patients with the disease, particularly Bacillus coli and streptococci.[17] By many writers the association of periarteritis with other diseases is mentioned, among which is scarlet fever, Friedberg and Gross[18] having found it following scarlet fever in two of eight cases. Many writers call attention to the apparent relationship of periarteritis to rheumatic fever, and some believe that rheumatic infection is a common cause of the vascular lesions.[19] Some cases have apparently definitely followed an attack of acute tonsillitis.[20] In one series that came to autopsy Aschoff bodies were present in the myocardium in six of thirteen cases.[18] However, very few of the cases reported previous to 1934 showed definite evidences of typical rheumatic changes, and a few of these appear questionable.

An arterial disease resembling periarteritis nodosa has been found in lower animals, even in wild deer,[21] further suggesting that it is a specific disease. To the present time the causative agent has not been determined, either as a bacterium or as a filtrable virus, but the nature of the lesion suggests an infectious etiology.[22]

There is no age incidence, the youngest patient being 3 months and the oldest 78 years of age. Fifty per cent of the cases occur between 20 and 40 years of age.[10]

SYMPTOMATOLOGY AND DIAGNOSIS

The symptoms are extremely varied, as would be expected, since the arterial system of any organ or set of organs may be involved, and even different organs in turn as the process subsides in one and becomes manifest in another, as occurred in case 1. The most outstanding clinical manifestations are those referable to the kidney. Heart failure with symptoms similar to the common clinical picture of coronary disease may appear as an isolated clinical manifestation.[23] Or the picture may be one of peripheral neuritis, even including the cranial nerves.[24] Involvement of the central nervous system occurs in only about 8 per cent of cases.[10] This small percentage is remarkable, and when the central nervous system is involved it is practically always the brain.[25] Ophüls[2] was able to find only four cases of cerebral involvement in the seventy cases that he reviewed in 1923. Since then other cases of cerebral involvement have been recorded.[26] Skin lesions not infrequently occur, taking the form of subcutaneous hemorrhages, urticaria and in particular purpura resembling Schönlein's disease. At least one case of erythema nodosum has been reported as due to vascular changes in the skin.[17b] Gastro-intestinal symptoms with bloody diarrhea are frequent, and peritonitis may develop[27] from necrosis and perforation of the intestinal wall. Almost any symptom or set of symptoms may occur and may vary from time to time, causing a most confusing clinical picture. The general symptoms are fever, never very high, sweating, rapid pulse and muscular and abdominal pains, even when there is no outstanding mesenteric involvement.

The particular character of the local symptoms depends on the system of arteries that happens to be involved. The frequent involvement of the kidney most often leads to a diagnosis of a primary medical or surgical renal lesion.[28] The most frequent diagnosis in the cases of outstanding renal involvement reviewed has been "hemorrhagic nephritis" or an analogous designation.[29] Numerous deaths from renal hemorrhage have been reported.[30] Even unilateral involvement of the kidney with hemorrhage has occurred.[31] Other such sharp localization of symptoms as those referable to the gallbladder leading to the removal of that organ[32] has been reported. Occult hemorrhage and death may occur, as in the rupture of an aneurysm of the hepatic or cystic arteries.[33]

The diagnosis has seldom been made during life, and then it has been more or less accidental.[34] This is not remarkable, considering the protean character of the manifestations and their ability to simulate almost any ordinary clinical entity.[35] The symptomatology is frequently vague, and there are no clinical diagnostic symptoms per se. The great difficulty in diagnosis is due to the variability of the clinical picture. Meyer[36] mentioned the combination of chlorosis, polyneuritis and gastro-intestinal symptoms as being a diagnostic

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triad, to which combination was added nephritis by Brinkmann,[37] who suggested the diagnostic syndrome of polyneuritis, polyserositis or a combination of the two, gastro-intestinal symptoms and nephritis. This syndrome is diagnostic if there is involvement of several systems of arteries simultaneously, but when there is

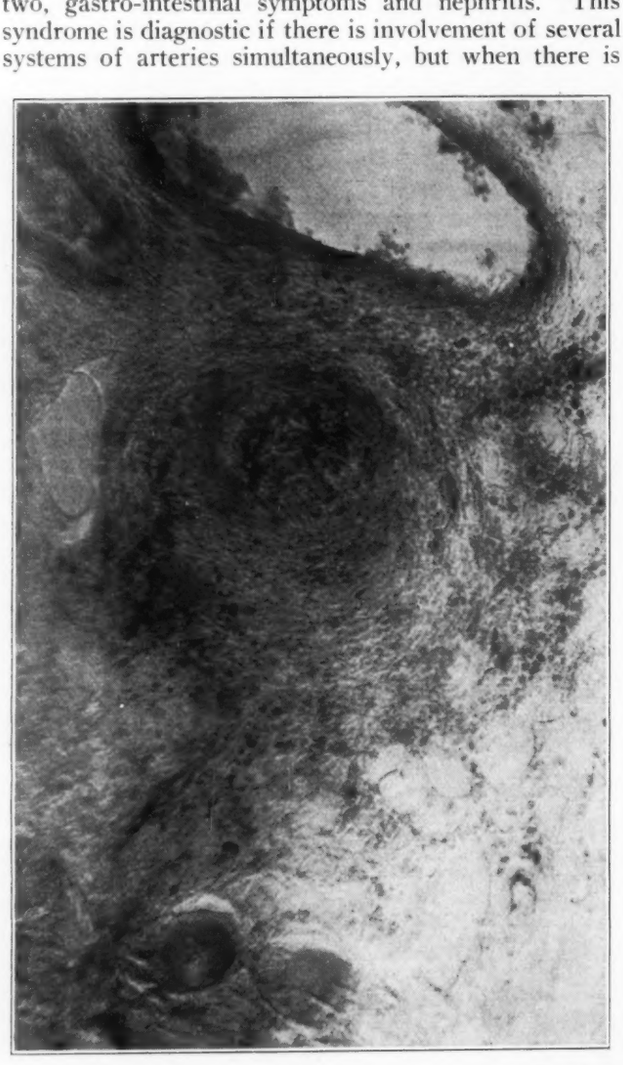

Fig. 1.—Temporary mount of frozen section of artery showing typical changes. Permanent mounts of paraffin sections failed to include as typical a lesion, and this preparation had deteriorated and faded greatly when photographed later, losing the distinctive appearance of the intense cellular infiltration and extensive perivascular changes.

localization of the process to one or two organs there is nothing in the symptoms referable to a disturbance of the organ or organs that in any way suggests the specific nature of the pathologic condition. In the end, the diagnosis depends on the typical pathologic changes found in the arteries either at biopsy or post mortem.

There are no clinical laboratory aids. Moderate or severe leukocytosis is present, though not universally. Marked eosinophilia has occurred only a few times.[38] Ophüls [2] remarked on the absence of a marked eosinophilia in the circulating peripheral blood in the face of a decided eosinophilic infiltration in the lesions in his case.

PROGNOSIS AND TREATMENT

In the recognized cases, recovery has been rare. An occasional recovery has apparently occurred,[15] as in case 1. Since there is some tendency to remission and even apparent recovery in the severe and recognized cases, it is possible that many mild cases exist and go on to spontaneous recovery unrecognized.

Except for general physiologic measures, antisyphilitic treatment and repeated blood transfusions, no other form of treatment has been used frequently, and the efficacy of these measures is questionable. Several of the patients who have apparently recovered have been given antisyphilitic treatment.

REPORT OF CASES

CASE 1.—*History.*—A white man, aged 31, consulted Dr. John P. Henry in January 1934 for asthma of about five months' duration. Because of other clinical features in the case, Dr. Henry referred him to me for diagnostic study. Except for the asthma, the patient noticed nothing unusual until about seven weeks previously, at which time a febrile illness developed; he had some fever for four or five days and thought it was a common cold. Early in this rather mild illness blood counts, made by his attending physician in another city, showed an essentially normal red cell count and hemoglobin, but a leukocytosis of 16,400 with polymorphonuclear leukocytes 82 per cent, lymphocytes 11 per cent, large mononuclears 5 per cent and eosinophils 2 per cent. Five days later, after the patient became ambulatory, blood counts made in the office of Dr. G. Y. Gillespie, in Greenwood, Miss., showed red blood cells 4,000,000, hemoglobin 75 per cent, leukocytes 17,600, polymorphonuclears 22 per cent, lymphocytes 13 per cent, and eosinophils 65 per cent. A few days after this illness a pain developed in the neck and in about seventy-two hours all the muscles became painful and the patient began to have fever again. Shortly afterward localized pain appeared in the left ankle, which was soon followed by swelling and the appearance of purplish red spots in the skin over the ankles. Within a day or two the right ankle underwent a similar change and

Fig. 2.—A small artery in subcutaneous tissue. The perivascular cellular changes are moderate in extent but distinctive.

this persisted to the time he came under my observation. At that time there were generalized weakness, soreness and pain in all skeletal muscles, and much pain, stiffness and swelling in both ankles and feet.

Examination.—The nose showed thickening and congestion of the mucous membrane, and there was considerable obstruction by reason of mucous membrane changes. Examination of the teeth, mouth and throat generally was negative. The heart

37. Brinkmann: Zur Klinik der Periarteriitis nodosa, München. med. Wchnschr. **69:** 703 (May 12) 1922.

38. Lewis, C.: Report of Case of Periarteritis Nodosa, Proc. Path. Soc. Philadelphia **14:** 134, 1911. Pickert-Menke, H.: Ueber einen Fall von Periarteriitis nodosa, Frankfurt. Ztschr. f. Path. **23:** 313, 1920.

and lungs were normal. The abdomen was entirely normal. Examination of the neuromuscular system and the eyegrounds was negative. Both ankles were edematous and the skin overlying them to a point about half-way up the leg showed rather thickly scattered erythematous purpuric-like lesions. On the outer aspect of the left ankle was a deeper ecchymotic area that appeared like an inflammatory process in the subcutaneous

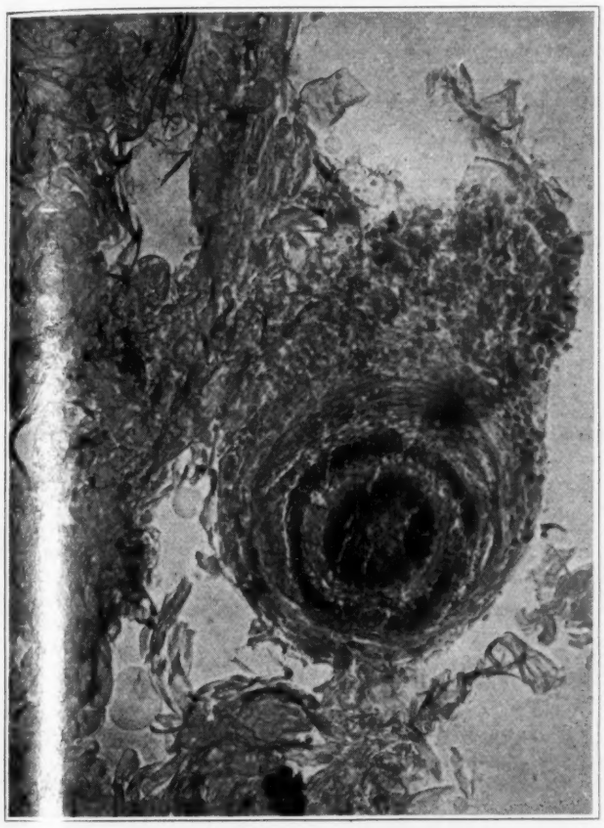

Fig. —Active lesion of vessel in subcutaneous tissue. Frozen section. An active lesion did not appear in portion of tissue from which permanent sections were made.

tissue. One or two nodules were felt beneath the skin on the outer aspect of the left leg above the ankle, which were small and painful. The skin overlying these nodules showed slight redness. The muscles were tender throughout, and motion was slow and painful. There were a few small shotty subcutaneous nodules over the upper extremities similar to those in the legs, the skin over which showed no reaction. There was generalized lymphatic enlargement, the nodes being painless with no skin reaction over them. The temperature was 98 F., the pulse 108 and the blood pressure 95 systolic, 80 diastolic.

At first observation, red blood cells numbered 3,710,000 with hemoglobin 11.3 Gm. per hundred cubic centimeters of blood. White blood cells numbered 32,000, with polymorphonuclear leukocytes 28 per cent, eosinophils 67 per cent, and lymphocytes 5 per cent. The blood Wassermann reaction was negative. The urine showed a heavy trace of albumin, a few hyaline casts, pus cells and red cells. Five specimens of feces were negative for parasites and ova. Three blood cultures on successive days were negative at the end of two weeks. The blood sugar was 133 mg. per hundred cubic centimeters (not fasting). Total nonprotein nitrogen was 40 mg. per hundred cubic centimeters. Uric acid was 4 mg. Subsequent observations showed an average of 25,000 leukocytes and an average of 66 per cent eosinophils. An electrocardiographic tracing showed evidences of myocardial changes suggesting coronary disease.

A piece of skin and subcutaneous tissue from the left leg was removed by Prof. J. L. McGehee for microscopic study. Sections of a small artery contained in the tissue showed intense inflammatory cellular infiltration of the adventitia extending through the media and involving the intima with obliteration of the lumen. The cellular infiltration extended well beyond the artery out into the perivascular tissue, producing a definite nodule. These cells consisted for the most part of polymorphonuclear leukocytes with many eosinophils and some round cells. The histologic picture presented by the artery was typical of periarteritis nodosa.

Clinical Course.—The treatment consisted of general physiologic measures with repeated blood transfusions of an average of about 350 cc. each, small doses of neoarsphenamine, a high vitamin diet and general symptomatic measures. While the patient was under observation there appeared evidences of derangement of almost every system that is capable of producing clinical manifestations. At different times there were such manifestations as mild delirium, marked evidence of nephritis with blood nitrogen going as high as 100 mg. per hundred cubic centimeters, symptoms of coronary disease, hemorrhagic retinitis, severe abdominal pain with bloody diarrhea, peripheral neuritis in the arms and legs, and cough with blood-streaked sputum. Some of these various manifestations coexisted and some appeared as others were disappearing. The patient began to improve and was discharged to his home and the care of his family physician, very much improved clinically. About the only pronounced symptoms at the time of discharge were a flaccid paralysis of the right leg and right arm and to a lesser extent of the left arm and marked general weakness.

The patient returned for observation about ten months later, Oct. 19, 1934, having gained about 40 pounds (18 Kg.) and free from all symptoms except those of neurologic residuals as a result of acute peripheral neurologic involvement at the time of the acute illness. Examination was entirely negative except for atrophy of the intrinsic muscles of the hand and the right forearm, and atrophy of the muscles of the right leg with toe drop. There were no sensory changes. The temperature was 98 F., the pulse 82 and the blood pressure 98 systolic, 70 diastolic. The red blood cells numbered 5,200,000, with hemoglobin 15.7 Gm. per hundred cubic centimeters. The leukocytes numbered 6,800, polymorphonuclear neutrophils 57 per cent and lymphocytes 43 per cent. Examination of the urine was negative. The sedimentation rate was normal. An electrocardiographic tracing was negative. The patient considered himself symptomatically well, except for the neurologic changes

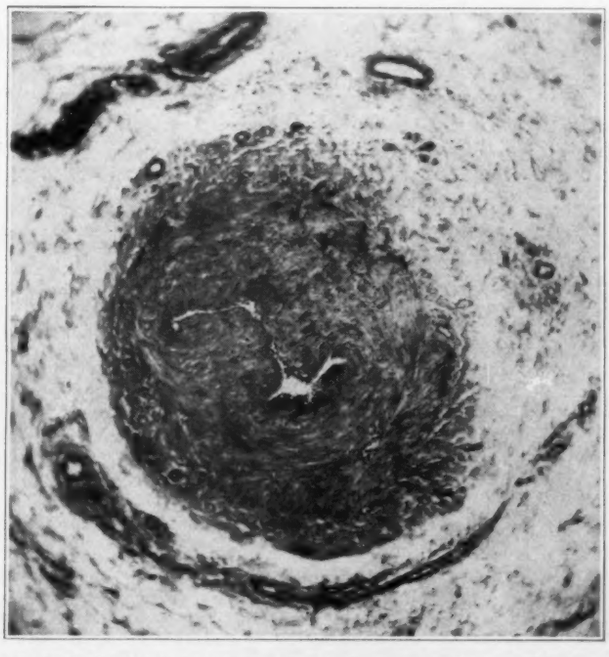

Fig. 4.—Healed lesion of vessel in subcutaneous tissue. This vessel present in same block of tissue in which active lesion was found, but in a different portion.

referred to, and was attending to his work regularly. He has not been seen since that time but reports indicate that he is still well.

The important features of this case are (1) generalized involvement of somewhat migratory character, (2) marked eosinophilia of peripheral blood, (3) diagnosis during life and (4) apparent recovery.

CASE 2.—A white man, aged 35, noticed swelling of the left foot and leg to a point a little below the knee three months before he came under observation, together with the appearance of red nodules in the skin. Two similar nodules had been present on the dorsum of the right foot but had disappeared at the time he came under observation. The nodules were only slightly tender and the only subjective symptom was slight discomfort in the left foot. Physical examination was entirely negative except for the red subcutaneous nodules and slight pitting edema of the left foot and leg. Pulsation of arteries was present and apparently normal, and there were no trophic or color changes. Complete laboratory studies were negative in all respects, except for a persistent leukocytosis, averaging about 12,000 with an average of 75 per cent polymorphonuclear neutrophils, and a trace of albumin in the urine. Tissue removed from the calf of the left leg showed a typical lesion of periarteritis of a small artery in a frozen section. A permanent section from the same block of tissue failed to show any active lesion but did show a healed lesion in a somewhat larger artery. In addition to antisyphilitic treatment, roentgen therapy is being given by Dr. W. R. Bethea of the Baptist Hospital, and to date he has received 1,746 roentgens over the feet and legs, divided into three séances. At the time of this report he has been under observation about seven weeks and apparently is slowly recovering. No new lesions have appeared and the ones that were present have disappeared either completely or nearly so. No additional symptoms or changes in the result of laboratory examinations have appeared.

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ELECTRICAL ALTERNANS

A CLINICAL STUDY WITH A REPORT OF TWO NECROPSIES

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AND
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It is generally recognized that electrocardiography adds little to the clinical diagnosis of pulsus alternans. While the electrocardiogram may show evidence of slight or widespread coronary and myocardial involvement, paradoxically it rarely demonstrates alternation of the ventricular complexes as one, a priori, might expect.

The two cases of electrical alternans without pulsus alternans we are about to describe—the first to be reported in this country—are in sharp contrast to the usual type of alternans, which is confined to the pulse, heart sounds or apex beat, without evidence of electrocardiographic alternation. The electrocardiographic finding of electrical alternans, judging from the literature and our own experience, is an exceedingly rare phenomenon. Our first case, observed in March 1933, constitutes the only one we have seen in a series of approximately 10,000 electrocardiograms covering a period of about thirteen years. However, since the appearance of the first case, three additional cases of electrical alternans in one or more leads of the electrocardiogram have come to our attention. One constitutes the second case of this report, a second occurred during an attack of paroxysmal tachycardia, and a third was associated with electrocardiographic evidence of bundle branch block. In none of the latter three cases were simultaneous venous or arterial pulse tracings made to rule out pulsus alternans, so that it is remotely possible that one or more of them are, in reality, examples of pulsus alternans with alternation of certain electrocardiographic complexes. Such a combination is rare but not as unusual as isolated electrical alternans without apparent mechanical alternation. The appearance of these three additional cases shortly after the finding of our original case suggests that such cases may be easily overlooked unless attention is particularly directed to them. One must be, as it were, "alternans conscious."

Read before the Association of American Physicians, Atlantic City, N. J., May 7, 1935.
Aided by the Frederick K. Babson Fund for the Study of Diseases of the Heart and Circulation.
From the Medical Department, Heart Station and Pathology Department, Michael Reese Hospital.

REPORT OF CASES

CASE 1.—Dr. S., a retired woman physician, aged 48, referred through the kindness of Dr. Robert Sonnenschein, seen in March 1933, complained of mild pain in the left side of the chest, radiating on occasion to the left shoulder and spine, first noticed some six years before and recurring during the past four months. It appeared frequently while the patient was eating and doing her daily housework. She also complained of vertigo, palpitation, depression with occasional crying spells, easy fatigability and moderate dyspnea. She had two "nervous breakdowns," which coincided with the two periods of precordial pains. Her family, past and personal histories otherwise were essentially negative.

The patient was moderately obese. The pulse rate was 120 and the blood pressure 196 systolic, 100 diastolic. The left heart border was displaced outward slightly, her heart tones were "tic-tac" in quality, and she had a markedly accentuated aortic second sound and a faint systolic blow over this region. A coarse tremor of the fingers was present. The metabolic rate was +13.7 per cent. An electrocardiogram at this time showed, besides a left axis deviation, a frank and continuous electrical alternans in leads 3 and 4. The alternans was a discordant one of the QRS and T waves.

The impression at this time was obesity, hypertension, arteriosclerotic coronary heart disease, moderate cardiac hypertrophy, early mild congestive heart failure with anginal attacks, sinus tachycardia, anxiety neurosis and electrical alternans, the last term being used for the first time in our cardiac diagnostic nomenclature. She was advised to secure more physical and mental rest and was placed on a preparation combining theobromine and phenobarbital.

She returned again about four weeks later feeling and appearing distinctly improved. The pulse rate was 100 and the blood pressure 166 systolic, 90 diastolic. A second electrocardiogram (fig. 1) was taken at this time and substantiated the earlier finding of discordant electrical alternans. In this record the alternation is present in all three leads and is a discordant one of QRS and T.

She was asked, because of the unusual electrocardiogram, to report to the heart station for further study. A week later the electrocardiogram was recorded simultaneously with optically recorded pulses from the subclavian artery, radial artery and external jugular vein, as well as with optically recorded apex beats and apical heart sounds (Wiggers' method[1]). No alternation of the pulse, apex beat or heart sounds was found while the electrical alternans was present, proving this to be an instance of isolated electrical alternans.

The inconstancy of the alternation suggested to us the possibility that breathing might be related to the alternation, as has been found to be the case in other instances.[2] Simultaneous records of the electrocardiogram, optically recorded pulse and respiration were therefore made. As shown in figure 2, some but not all of the inspirations started transient electrical alternation of from one to three cycles. When the breath was held, no alternation appeared. In several instances in these curves the alternation was accompanied by alternation in cycle length. No alternation of the pulse was found.

The patient disappeared from view until July 1934, a period of fourteen months. The electrocardiogram, when she returned

1. Wiggers, C. J.: The Pressure Pulses in the Cardiovascular System, New York, Longmans, Green & Co., 1928, p. 15.
2. Kisch, Bruno: Der Herzalternans, Leipzig, Theodor Steinkopff, 1932.

for examination, to our amazement showed complete absence of the alternans (fig. 3 *A*). Her report and our examination showed her to be in a satisfactory state.

Five months later she entered the hospital because of failing strength and exacerbation of old symptoms following a "cold" six weeks prior to entrance. Two weeks afterward an acute viselike pain suddenly developed over the precordium, radiating to the left shoulder and elbow, which had recurred repeatedly since. There had been increasing general nervousness and some emotional instability. Sedatives and glyceryl trinitrate gave her a good deal of temporary relief. On the day of admission she had had seven attacks of precordial pain by late afternoon.

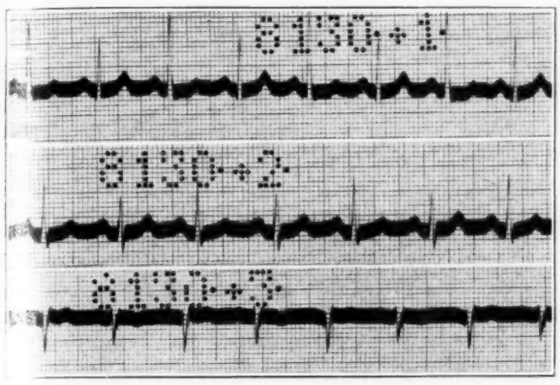

Fig. 1 (case 1).—Electrical alternation in all three standard leads, involving R_1, R_2, T_1, T_2, T_3 and S_2, S_3; discordant alternation between R_1, S_3 and T_1, T_3. Record taken April 25, 1933.

Examination at this time revealed a rapid, regularly beating heart, with a rate of 120. The left border was outside the nipple line. The aortic second and the pulmonic second sounds were accentuated. There was gallop rhythm at the apex. The lungs were clear. There was slight edema along the tibial crests. The temperature was normal. Successive arterial blood pressure readings were 142/98, 124/80 and 102/—. A 2 meter roentgenogram revealed a moderate cardiac enlargement. The basal metabolism, a week later, was +29.4 per cent. The urine showed no abnormalities; she had a moderate secondary anemia. During her stay in the hospital moisture developed at both lung bases posteriorly. Liver dulness increased and the pulse became more rapid. It was apparent a week after entrance that she was critically ill. She was placed on sedatives, including morphine and a mixture of opium and alkaloids.

Several electrocardiograms were obtained at this time with difficulty and showed absence of the electrical alternans, last observed nineteen months previously. The absence of electrical alternans is seen in the records in figure 3 *B* and *C*.

The marked change in the ST segment, depression in leads 1 and 2, and elevation in lead 3 is evident in record *C*, which is typical of other records taken during this time and bespeaks progressive coronary insufficiency. The increase in the size of the T wave and the appearance of an upright T_4 probably have the same significance. During an anginal attack (fig. 3 *B*), the electrocardiogram showed that ST_1 and ST_2 became smaller in all leads and auricular extrasystoles appeared. A tablet of 1/100 grain (0.0006 Gm.) of glyceryl trinitrate relieved the attack and restored the electrocardiogram to its preceding state (fig. 3 *C*). No increased irritability of the carotid sinus reflex could be demonstrated, clinically or electrocardiographically.

December 13 she became rapidly worse and before oxygen could be administered and in spite of the use of caffeine, camphor and the like, she died.

The necropsy revealed a moderate generalized arteriosclerosis with coronary arteriosclerosis. There was a recent bilateral bronchopneumonia. The lungs, liver, spleen and kidneys showed chronic passive hyperemia of long duration. The outstanding changes of the heart at autopsy were the small, multiple, recent and organizing infarcts and areas of fibrosis. The coronary arteries themselves showed only a moderate amount of arteriosclerotic change. There was an atypical distribution of the coronary arteries, the right taking care of the nutrition of the largest part of the heart (fig. 4). There was an arteriosclerosis of the ascending aorta; arteriosclerotic plaques, which were present just above the mouth of the right coronary artery, caused a marked narrowing of its orifice. The left coronary artery was much less in extent than normal and was patent. It is likely that the changes at the mouth of the right coronary artery, which supplied most of the heart muscle fibers, were responsible for the myocardial fibrosis. Because of the myocardial fibrosis, the heart probably became insufficient on various occasions. This insufficiency, combined with the consequent temporary lowering of the arterial blood pressure on the one hand and the narrowing of the mouth of the right artery on the other, apparently was the principal factor in the causation of the multiple infarcts of the heart. Electrical alternans is not mentioned in the previous reports of multiple, small or microscopic infarcts of the heart by Kirch[3] and Büchner.[4]

CASE 2.—Mrs. L., aged 59, a patient of Dr. Solomon Strouse's, when first seen April 3, 1934, had no complaints referable to the heart but complained of loss of appetite. On physical examination, the left heart border was found displaced outward. The urine contained albumin and hyaline and granular casts. There was slight edema of the legs. She was sent to the hospital, where definite signs of effusion of the right pleural cavity and considerable enlargement of the heart were found and verified by roentgen examination. The x-ray report indicated pericardial effusion but the clinical signs were not conclusive. The temperature was 99.2 F., pulse 108, respiration rate 28, blood pressure 120 systolic, 74 diastolic. The red blood count was 4,180,000; white count, 12,150. There were râles and dulness over the right lung base. She became dyspneic and orthopneic. An electrocardiogram taken April 6, the day of admission, showed an alternans of the QRS complex in leads 1, 3 and 4, without any alternans of the other waves (fig. 5 *A*). Because of the patient's condition no opportunity was available for taking other types of records to rule out mechanical alternans. Thoracentesis yielded a bloody fluid in which tumor cells were found later. The roentgenograms taken after the chest had been tapped showed a consolidated area in the right lung in the lower portion of the middle third that was suggestive but not particularly typical of a malignant growth. The course in the hospital was steadily down-hill and the patient died eight days after admission.

The clinical impression was that there was generalized arteriosclerosis with myocardial fibrosis, pleural effusion, and a possible malignant condition (location of the primary tumor could not be determined) with metastases into the pleura and the heart.

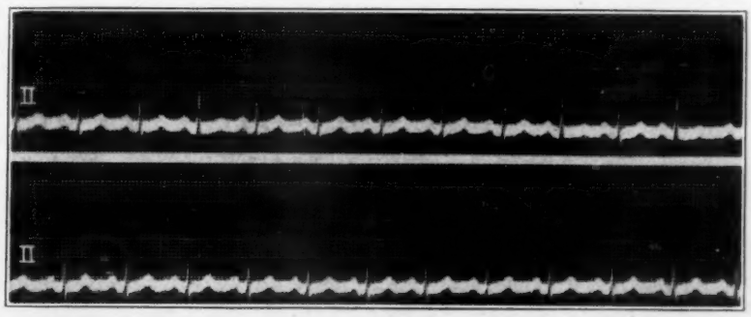

Fig. 2 (case 1).—Simultaneous continuous electrocardiogram (lead 2) and radial pulse and respiration curve. In the top strip, brief periods of electrical alternation of 1 to 3 cycle duration may be seen, apparently related to inspiration. Record taken May 1, 1933.

The necropsy revealed a primary carcinoma of a tertiary bronchus with extension into the lung, and metastases to the pleura, mediastinal nodes, pericardium, innominate bones, the second, third and fourth lumbar vertebra and the urinary bladder.

Microscopically, many small carcinomatous metastases were found throughout the myocardium.

3. Kirch, E., in Lubarsch, Otto; von Ostertag, R., and Frei, W.: Ergebn. d. allg. Path. u. path. Anat. **23**: 382, 1930.
4. Büchner, F.: Beitr. z. path. Anat. u. z. allg. Path. **89**: 644, 1932.

LITERATURE

Pezzi [5] in 1922, Chini [6] in 1927, Galatà [7] in 1928 and Condorelli [8] in 1929 were the first Italian writers to call attention to electrical alternans. Isolated electrical alternans was first described by the English investigator Mines [9] in 1913 in the electrograms obtained from the

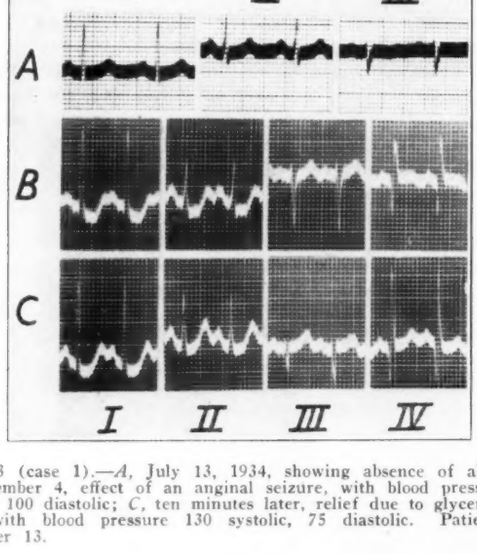

Fig. 3 (case 1).—*A*, July 13, 1934, showing absence of alternans; *B*, December 4, effect of an anginal seizure, with blood pressure 145 systolic, 100 diastolic; *C*, ten minutes later, relief due to glyceryl trinitrate, with blood pressure 130 systolic, 75 diastolic. Patient died December 13.

frog's heart. A very complete and critical summary and discussion of the literature up to 1930 may be found in the French monograph by Poumailloux [10] on pulsus alternans. Poumailloux concluded that there are two forms of electrical alternans having different significance: (1) alternation of the T wave or without alternation of QRS, which has the same significance as mechanical alternation, and (2) alternation of the QRS complex or any of its components, which is transient and totally unrelated to mechanical alternation.

Bruno Kisch [2] considers cardiac alternation in the same terms as Mines and Hering; namely, that it is an expression of the mechanical behavior of the ventricles. He believes that all types of alternans are simply expressions of a basic alternans of the heart ("herz

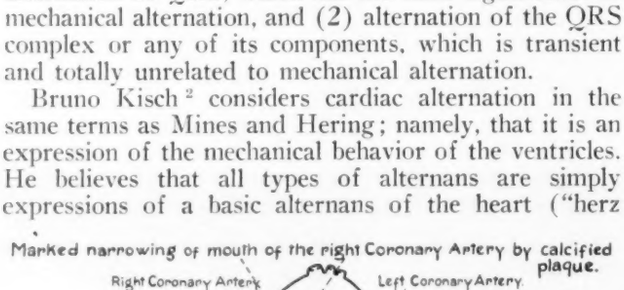
Marked narrowing of mouth of the right Coronary Artery by calcified plaque.
Right Coronary Artery
Left Coronary Artery
Arteriosclerotic plaques

Fig. 4 (case 1).—Sketch of the heart showing the atypical distribution of the coronary arteries and the location of the lesions found within the coronary arteries.

alternans"). This phenomenon may in various instances be demonstrated best by the electrocardiogram, by the pulse curve, or by other methods of examination. Kisch points out that electrical alternans may consist of variations in either the amplitude (height), contour (form), direction or duration of the involved complexes. The most frequent forms are those involving T alone or both the QRS and T waves. Hering [11] in 1910, working on the mammalian heart, believed that alternation of QRS was an expression of alternation of the papillary muscles. Condorelli [8] attributed the phenomenon to alternation in the conduction pathways. Condorelli [12] agrees with Kisch that clinical as well as experimental alternans is clearly an expression of exhaustion of the myocardium. He also agrees that electrical alternation probably has the same significance as regards prognosis as alternation of the contractile strength of the heart.

The literature contains many references to so-called coronary alternans, both experimental and clinical. Lewis [13] in 1910 was among the first to demonstrate alternans of the heart following coronary occlusion. Condorelli [12] described electrical and pulsus alternans in man following disturbances in coronary function and also reported isolated electrical alternation in the dog's heart following coronary occlusion. Kisch found that interference with the nutrition of the dog's heart through coronary closure may cause alternation even in the absence of an increase in heart rate, an alternation most marked in that portion of the ventricles in

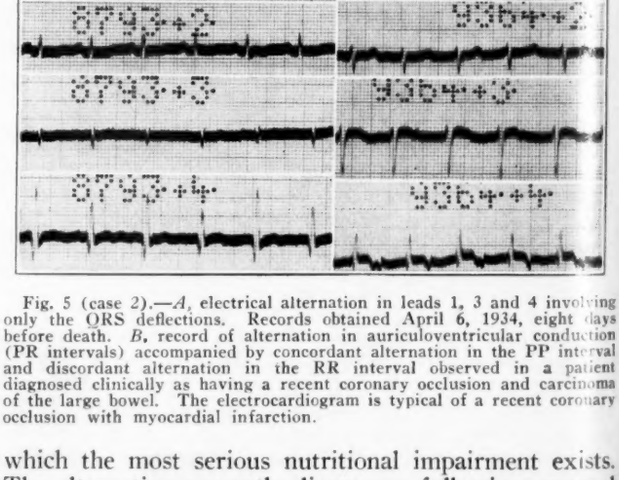

Fig. 5 (case 2).—*A*, electrical alternation in leads 1, 3 and 4 involving only the QRS deflections. Records obtained April 6, 1934, eight days before death. *B*, record of alternation in auriculoventricular conduction (PR intervals) accompanied by concordant alternation in the PP interval and discordant alternation in the RR interval observed in a patient diagnosed clinically as having a recent coronary occlusion and carcinoma of the large bowel. The electrocardiogram is typical of a recent coronary occlusion with myocardial infarction.

which the most serious nutritional impairment exists. The alternation promptly disappears following removal of the coronary ligatures.

COMMENT

The electrocardiogram in our first case falls into the first of Kisch's [2] etiologic types; namely, the so-called coronary alternans. The transitory character of the electrical alternans which is so unlike pulsus alternans may account for the rarity of observed and recorded cases. It is a phenomenon that should be carefully looked for even when mechanical alternans is not demonstrable.

The electrical alternans in case 2 is, in view of the autopsy, also attributable to coronary insufficiency, in this instance resulting from the multiple tumor emboli obstructing the blood flow. Although no mention is made of the clinical presence of pulsus alternans in the second case, we cannot be certain that this is not an instance of electrical alternans with mechanical alter-

5. Pezzi, C.: Arch. d. mal. du cœur. **15**: 378 (June) 1922.
6. Chini, V.: Cuore e circolaz. **11**: 494 (Dec.) 1927.
7. Galatà, G.: Cuore e circolaz. **12**: 178, 1928.
8. Condorelli, Luigi: Arch. di pat. e clin. med. **8**: 428 (April) 1929.
9. Mines, G. R.: J. Physiol. **46**: 349, 1913.
10. Poumailloux, Marcel: Le pouls alternant, Paris, Masson et Cie, 1930.
11. Hering, H. E.: Ztschr. f. exper. Path. u. Therap. **7**: 363, 1910.
12. Condorelli, Luigi: Die Ernährung des Herzens, Leipzig, Theodor Steinkopff, 1932.
13. Lewis, Thomas: Quart. J. Med. **4**: 141, 1910.

nans rather than isolated electrical alternans. In this instance, in contrast to the first case, the electrical alternans was observed accidentally in the last weeks of the patient's life.

It is possible from the nature of the anatomic lesions in these two cases that electrical alternans may ensue more readily in the presence of widely disseminated small coronary occlusions and multiple minute myocardial dissolutions than from more extensive isolated lesions. If this is so, its demonstration will be useful in the type of alternans arising on a coronary insufficiency basis.

The relation of the electrical alternans in case 1 to respiration seems established from our records. The precipitating factor in all likelihood is a reflex from the lungs to the heart, impairing the conduction of the impulse within the ventricles. It is possible, but less likely, that the mechanism is some respiratory disturbance of the cardiac dynamics.

There is sufficient evidence in the literature and in our first case to show that the electrical and the mechanical alternation appear clinically independently of each other and consequently by experience might be found to have different clinical significance, as Poumailloux states. The absence of one form of alternans does not rule out the presence of the other. This is of great practical significance, since the examiner should not be satisfied merely to determine the presence or absence of pulsus alternans but also should look for the presence of alternation in the veins, the apex beat, the heart sounds and the electrocardiogram.

The primary disturbance in all types of alternans is alternation in the physiologic response of parts of the heart. It is very easy to conceive of a distribution of alternating fractions in the heart such that the mechanical summation makes the alternans practically non-apparent with the methods available for recording mechanical events, while the electrical balance is favorable for a marked electrical alternans. The converse situation is also easy to appreciate; namely, a manifest mechanical alternans with neutralization of the electrical stresses such that the electrical alternans is not apparent. Since the distribution of the alternating parts of the heart is the factor determining the form the alternans will assume, more attention, it seems to us, should be paid to the thorough examination of the patient to rule out completely the presence of alternans of any type.

A typical example of the effect of location of the alternating fractions in the conduction system is shown in figure 5 *B*. This is an unusual electrocardiogram in which the alternation consists of alternation of auriculoventricular conduction without any alternation of the various electrocardiographic complexes. This peculiar alternation is associated with a concordant alternation of the PP intervals and a discordant alternation of the RR intervals. The only previous report we have seen is one by Carter and Faulkner [14] in which the alternation in auriculoventricular conduction occurred in the turtle heart. The patient from whom this unusual electrocardiogram was made, a private patient of Dr. Nathan Crohn, had a carcinoma of the large bowel, and a recent coronary occlusion developed a few days before the electrocardiogram was taken. He had also been given digitalis. The electrocardiogram is typical of recent coronary occlusion and shows sinus rhythm, first degree auriculoventricular block and left ventricular preponderance, in addition to the peculiar type of alternation. The P wave is buried in the T wave but its position varies alternately. This is due partly to the alternation of the PR interval and partly to the alternation of the PP interval.

The possibility of different prognostic significance of the various types of alternans should for the present be held *sub judice*. In arriving at a prognosis one should pay attention rather to other circumstances accompanying the alternans, such as the heart rate, the presence of extrasystoles and the clinical state of the patient. The occurrence of electrical alternans in paroxysmal tachycardia is not at all uncommon and is of no serious moment. When electrical alternans occurs at slower heart rates, however, as in the two cases examined post mortem, it should be viewed with grave concern, a finding stressed by Chini.[6]

The transitory nature of electrical alternans in our first case might be attributed to improvement of the heart, but it is just as likely, if not more likely, that its disappearance has exactly the opposite significance; namely, that the condition of the heart has become worse. Alternans implies that at a certain stage of the heart's weakness certain regions are unable to respond normally to every stimulus but fluctuate alternately between a better and poorer response—or even no response. As the condition of the heart progresses downward the condition is changed and the heart may give a poor but constant response to every stimulus.

SUMMARY

1. In a case of transient isolated electrical alternans, autopsy revealed an anomalous distribution of the right coronary artery with a calcified plaque markedly narrowing its mouth, generalized coronary arteriosclerosis and multiple microscopic myocardial infarcts. In a second case of possible isolated electrical alternans autopsy revealed multiple minute carcinomatous metastases within the myocardium and in the blood vessels of the heart. In the instance of alternans in auriculoventricular conduction no similar clinical report was found in the literature.

2. It seems likely that the anatomic lesions in the first two instances, by leading to malnourishment of fractions of the heart, were responsible for the electrical alternans. They are, therefore, both of the coronary type of Kisch. The appearance of electrical alternans in instances in which the myocardial lesions are small and scattered may be significant.

3. A search of the literature revealed the rarity of isolated electrical alternans, our first case being the first described in this country and the first published with necropsy data.

4. The transitory nature of electrical alternans is demonstrated in our first case.

5. There is a grave prognostic significance of electrical alternans.

6. While alternans of the heart may appear in several forms, there is evidence to show that fundamentally the mechanism is identical in all instances; namely, alternation of activity of portions of the heart. The form taken by the alternans will depend on the distribution of the alternating portions of the heart.

7. The transient character of electrical alternans emphasizes the need for closer scrutiny of electrocardiograms. The gravity of alternans and the fact that it sometimes appears only in the electrical form emphasizes the need of becoming more "alternans conscious." If more attention were paid to electrical alternans, probably many more instances would be found.

104 South Michigan Avenue.

14. Carter, E. P., and Faulkner, J. M.: Bull. Johns Hopkins Hosp. 42: 245 (May) 1928.

A METHOD OF ROENTGEN DIAGNOSIS OF NONOPAQUE FOREIGN BODIES IN THE ESOPHAGUS

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AND
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The detection and demonstration of nonopaque foreign bodies in the esophagus is a frequent and treacherous problem in roentgenology. By far the most common offender is a small piece of bone from a fowl or fish. These bones, which are usually from young animals and are consequently incompletely ossified and calcified and in which the calcium content has been further reduced by cooking, are relatively nonopaque to x-rays. The bone most frequently encountered, according to the Jacksons [1] and in our experience, is a fragment of the sternum of a chicken. A piece of rib is next in order.

Another type of radiolucent foreign body is buttons, many of which are transparent to roentgen rays and require the aid of a barium mixture for their visualization. A firm bolus of food, especially meat, is a third type of radioparent foreign body when halted in its passage by inherent or adjacent lesions of the esophagus; e. g., mediastinal tumors, aneurysms, carcinomas or strictures of the esophagus, enlargements of the thymus or thyroid, or an enlarged left auricle. This type of foreign body as a rule is readily identified with the use of an opaque meal because it produces a complete esophageal obstruction and the existence of offending lesions can be easily recognized.

The customary site of lodgment [2] of esophageal foreign bodies is at the level of the suprasternal notch, as it is normally the narrowest segment of the esophagus.[3] Lesser constrictions occur at the introitus, at the level of the crossing of the left bronchus and at the diaphragmatic pinchcock. These levels must be kept in mind, as opaque mixtures may lag in traversing them and lead to an erroneous diagnosis.

The symptoms produced by nonopaque esophageal foreign bodies are in no wise different from those which are opaque. Patients who have swallowed a foreign body give a history of an initial choking. They are excited and apprehensive and complain of a persistent gagging or "obstructive" sensation. Dysphagia and odynophagia are cardinal symptoms. The movements of swallowing are exaggerated, and drooling is occasionally present. These patients rightfully regard the condition as an emergency.

Small jagged pieces of bone lodge because their sharp edges become partly embedded in the walls of the esophagus and the chance of producing a complete penetration with its consequent mediastinitis is always imminent. It was with the idea of minimizing this risk that the radiographic and roentgenographic technic to be described was developed.

Before the examination, all clothing must be removed. The films and fluoroscopic studies must include the nasopharynx and the stomach. Only films technically perfect are acceptable and quick exposures (from one-fifteenth to one-twentieth second) are absolutely necessary for the elimination of blurred shadows resulting from movement.

Anteroposterior and lateral views of the neck are the first films made with the hope of visualizing the suspected fragment before resorting to the use of opaque mediums. The lateral exposure (fig. 1) is more helpful, as the hypopharynx is not obscured by the overlying cervical spine. Chamberlain and Barton [4] warn against mistaking areas of ossification in normal laryngeal cartilages for foreign bodies and emphasize the importance of accurately identifying them.

If the preliminary films do not demonstrate the object, the patient is placed before the fluoroscope and given a thick suspension of barium sulfate in water and carefully observed to determine whether there is a deviation or division of the stream or a filling defect of the esophagus. After several swallows of the opaque mixture, the esophagus is carefuly searched for residual flecks of barium that might be clinging to the foreign body. Even if the diagnosis of a radiolucent foreign body is established, we feel that at least one film of the entire esophagus should be made if only to serve as a matter of record. When the evidence is inconclusive, roentgenograms are absolutely essential because of their greater contrast and detail.

Fig. 1 (case 1).—Lateral "scout film" of neck, demonstrating a fragment of chicken rib in the esophagus at the level of the suprasternal notch.

We have obtained the best results by using a very thin watery solution of barium—so thin that the esophagus when filled is not completely opaque. The patient holds a glass of this mixture in his left hand while standing in front of the regular cassette changer and is instructed to drink the solution through a glass tube in small, rapid swallows in an effort to maintain a continuous stream down the esophagus. Exposures are made in both the anteroposterior and the right anterior oblique position, which is preferred to a lateral view, as the region of the suprasternal notch is better visualized. This barium mixture coats the esophageal walls as iodized oil does the bronchi, and on meeting a foreign

From the Edward Mallinckrodt Institute of Radiology, Washington University School of Medicine.

1. Jackson, Chevalier, and Jackson, C. L.: Annals of Roentgenology, New York, Paul B. Hoeber, Inc. **16**: 65, 1934.

2. (*a*) Jackson.[1] (*b*) Manges, W. F.: Am. J. Roentgenol. **17**: 44-50 (Jan.) 1927.

3. Jackson, C. M., in Morris: Human Anatomy, ed. 8, Philadelphia, P. Blakiston's Son & Co., p. 1167.

4. Chamberlain, W. E., and Young, B. R.: Ossification (So-Called Calcification) of Normal Laryngeal Cartilages Mistaken for Foreign Body, Am. J. Roentgenol. **33**: 441-450 (April) 1935.

body it produces a constant filling defect. In addition, it coats the object, which is then demonstrated as a constant collection of opaque material within the lumen of the esophagus. It should be emphasized that both the filling defect and the mass of barium in the lumen coinciding with it must be present in both views or in subsequent films. The following cases demonstrate the technic and show the foreign bodies:

CASE 1 (fig. 1, kindness of Dr. J. B. Costen).—A white woman, aged 44, a housewife, entered Barnes Hospital Aug. 21, 1926, with a history of "choking" on a chicken bone. The preliminary films established the diagnosis. Esophagoscopy was performed and the partially embedded fragment was removed on the second attempt.

CASE 2 (fig. 2, kindness of Dr. M. F. Arbuckle).—A white woman, aged 39, a housewife, entered Barnes Hospital March 4, 1935, with the history of having swallowed a chicken bone several hours previously. Scout films failed to show the foreign body. Roentgenograms made during the swallowing of a thin barium sulfate solution localized the fragment, which was then removed at esophagoscopy. A large mass of meat was clinging to the bone.

CASE 3 (fig. 3).—A white man, aged 42, married, a salesman, entered the hospital Dec. 12, 1934, complaining of dysphagia and odynophagia with the history of having swallowed a chicken bone three days previously. It was demonstrated by

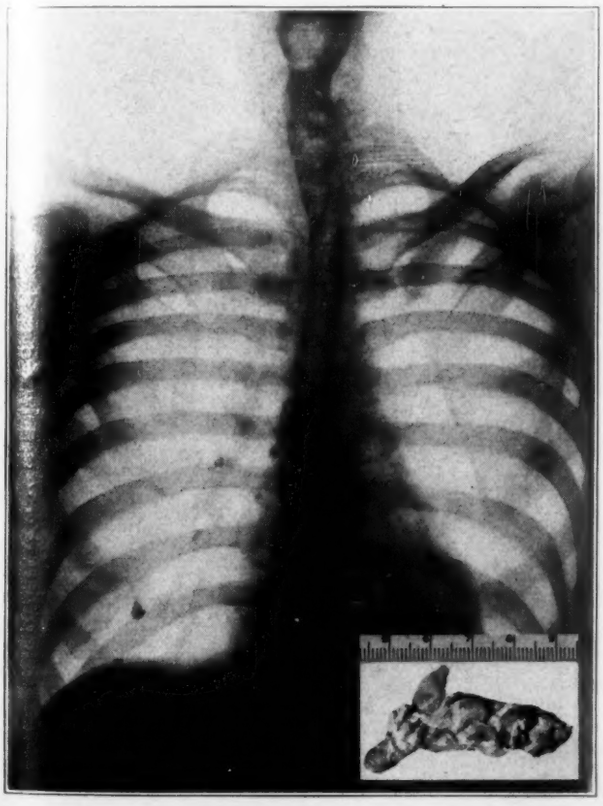

Fig. 2 (case 2).—The anteroposterior film of the esophagus shows a persistent filling defect of the wall and a constant mass of barium in the lumen. Note how the barium coats the mucosa without producing complete opacity of the tube. (Also see figure 3.)

the use of thin barium sulfate. The fragment was not seen in the preliminary films. At esophagoscopy Dr. M. F. Arbuckle found and removed a piece of chicken rib at the predetermined site.

We have abandoned the practice of having patients swallow bariumized biscuits, pledgets of cotton saturated with barium sulfate[5] or capsules filled with bismuth subcarbonate[2b] because the weight of these substances on a sharp foreign body, aided by prolonged esophageal peristalsis, may produce a complete penetration. The fact that such opaque solids move slowly and may even stop in their passage through the lower part of the esophagus makes them unreliable agents in exploring this segment. Incidentally, we feel that an effort should be made to discourage the common

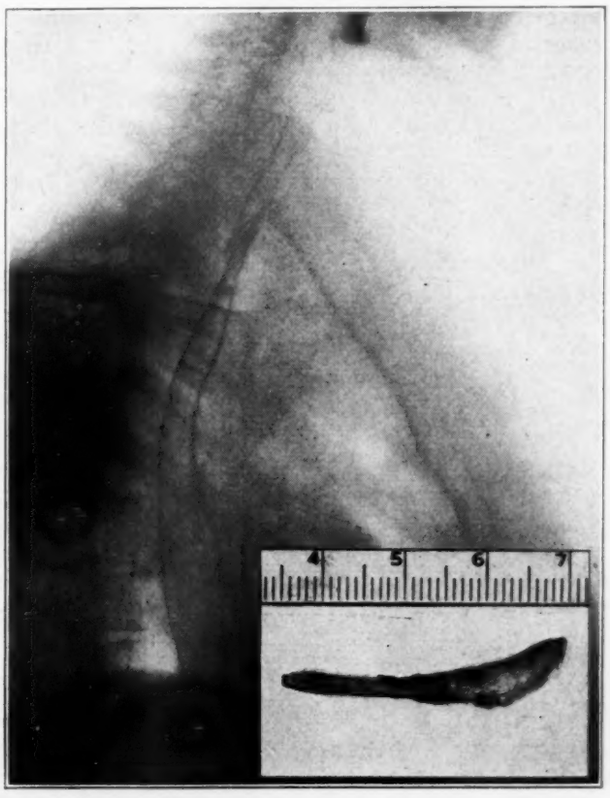

Fig. 3 (case 3).—A right anterior oblique view of the esophagus during the swallowing of a thin barium solution. The foreign body is visualized as a persistent mass of barium within the lumen coinciding with a constant filling defect.

practice of patients forcefully swallowing a large firm bolus of food in an effort to dislodge a jagged intruder, as not only does it increase the danger of perforating the esophagus but the presence of residual food obscures the foreign body and becomes a hindrance to esophagoscopy. While reviewing the literature, we inadvertently found several case reports[6] in which small nonopaque bones perforated the esophagus and produced severe infections.

As foreign bodies are prone to shift and change positions, esophagoscopy should be performed as soon as possible after the diagnosis has been established. Furthermore, as pointed out by all writers in this field, esophagoscopy is indicated in spite of a negative roentgenoscopic and radiographic examination if the patient's history and symptoms point to a foreign substance.

SUMMARY

1. A routine free from the risks of methods employing solid or semisolid opaque mediums is desirable in diagnosing nonopaque foreign bodies in the esophagus.

5. Wilson, W. F.: Oesophagoscopy: A Means of Detecting Foreign Bodies Non-Opaque to X-Rays, Brit. M. J. **1**: 656 (April 4) 1925.

6. Pancoast, H. K.: Roentgenology of the Pharynx and Upper Esophagus, Am. J. Cancer **17**: 373-395 (Feb.) 1933 (chicken bone). Saltzstein, H. C.: Duck Bone Impacted in Lower End of Oesophagus; Erosion of Oesophageal Wall; Fatal Haemorrhage, Ann. Surg. **95**: 794-797 (May) 1932. Ginsburg, Louis: Perforation of the Esophagus by a Chicken Bone, Ohio State M. J. **27**: 568-570 (July) 1931. Iglauer, Samuel and Ransohoff, J. L.: Perforation of the Esophagus by a Foreign Body (Rabbit Bone), with Report of a Case Presenting Unusual X-Ray Signs, Laryngoscope **34**: 821-825, 1924.

2. The routine consists of first taking anteroposterior and lateral "scout" films of the neck in the hope of visualizing the object; second, if these are negative the patient is observed by the fluoroscope while swallowing a very thick barium mixture, and any delay, filling defect, deviation or division of the column is noted; third, anteroposterior and oblique roentgenograms are made during the rapid swallowing of a thin barium sulfate solution. The presence of a constant filling defect and a persistent mass of barium in the lumen constitutes sufficient evidence for the diagnosis of a nonopaque foreign body.

3. Rapid exposures (from one-fifteenth to one-twentieth second) and technically perfect films are necessary.

4. As foreign bodies are prone to shift, esophagoscopy should be done as soon as the diagnosis is established.

5. Esophagoscopy is indicated even with a negative roentgenoscopic and radiographic examination if the patient's symptoms are those of a foreign body.

6. Propaganda should be disseminated among the public as a warning of the danger of completely perforating the esophagus by forcefully swallowing a large bolus of food in an effort to dislodge a sharp foreign body.

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HEREDITARY ECTODERMAL DYSPLASIA OF THE "ANHYDROTIC TYPE"

WITH SYMPTOMS OF ADRENAL MEDULLA INSUFFICIENCY AND WITH ABNORMALITIES OF THE BONES OF THE SKULL

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In 1838 Widderburn reported a very striking anomaly of the skin which he observed in ten males of a Hindu family. The symptomatic triad of this anomaly consisted of complete inability to sweat (anhydrosis), a deficiency of the scalp, axillary and pubic hair (hypotrichosis) and partial absence or an incomplete development of the teeth (anadontia). In recent years Thadani has reported similar cases occurring in Hindu families from a district where inbreeding is common.

Among Europeans Thurman in 1848, Williams in 1848, Guilford in 1883 and Hutchinson in 1886 described similar hereditary ectodermal anomalies. Guilford in 1883 reported the existence in his patient of a saddle nose and established the fact that the afflicted members of the patient's family had the same deformity of the nose. Hutchinson observed a defect on the mamilla, a finding that is not present in all cases. In the German literature Tendlau in 1902, Weichselmann and Loewy in 1911 and Crist in 1913 described families with this congenital disease. In these cases attention was called to a decrease of intellect and a deformity of the auricles (satyr auricles). In recent years several other cases have been reported in the American and German literature and the name "hereditary ectodermal dysplasia of the anhydrotic type" has been adopted for this hereditary disease. In reports in the American literature there are cases which exhibit only the dystrophy of the hair and nails without changes in the sweat or sebaceous glands or in the skull contours (McKay and Davidson). Transmission by both sexes is manifest in these cases of McKay and Davidson. Gordon and Jamieson[1] justifiably differentiate a group only with dystrophies of the hair and nails from the ectodermal dysplasia of the "anhydrotic type." Clouston reported 119 cases in six generations with dystrophy of the nails and hair. Some of this family exhibited only keratodermia plantaris et palmaris. Clouston believed that these were due to residual forms of an ectodermal dysplasia of the anhydrotic type. It may be that one or the other of the manifestations of the hereditary ectodermal dysplasia may be observed occasionally as formes frustes. Perhaps the hereditary alopecia belongs to this group of hereditary dysplasia. It is evident that there is some relationship between all these features of hereditary ectodermal dysplasia, but

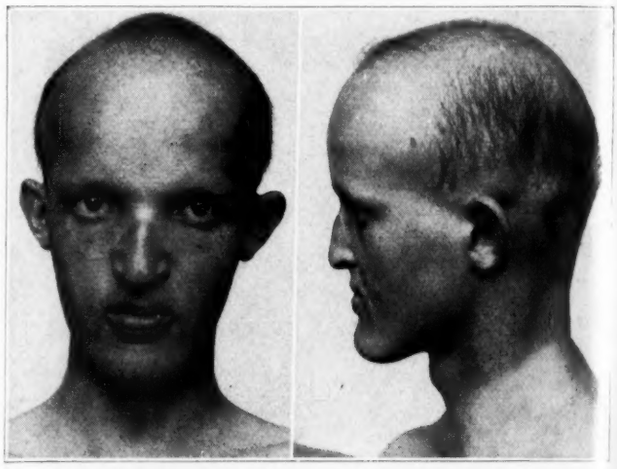

Fig. 1.—Front and side view of patient.

it is desirable to differentiate two main clinical syndromes; one consists of the symptomatic triad of anhidrosis, hypotrichosis and anadontia and the other dystrophies of the hair and nails. The first group is transmitted by females and appears for the most part in males; the second may be transmitted by either sex and appears in both men and women. Siemens, utilizing the pedigree of Weichselmann, demonstrated that the transmission of hereditary ectodermal dysplasia of the anhydrotic type is recessive and obligatory to sex. The same type of transmission is known to exist in hemophilic families. It must be mentioned here that Guilford in 1883, Gauermann in 1920 and Gordon and Jamieson in 1932 reported cases of women afflicted with hereditary ectodermal dysplasia of the anhydrotic type, so that exceptions from the rule of transmission are still to be explained.

Following are the history and clinical observations in a case of hereditary ectodermal dysplasia of the anhydrotic type. They are remarkable in four points: 1. The patient has a pedigree confirming the fact that transmission is recessive and obligatory to sex. 2. The patient did not perspire until his sixteenth year. Subsequently he began to sweat, but up to the present time sweating has occurred scantily and infrequently. 3. The patient exhibits signs of insufficiency of the adrenal medulla (the adrenal medulla is an ectodermal organ). 4. The roentgenograms of the skull show a deformity

1. Gordon, W. H., and Jamieson, R. C.: Hereditary Ectodermal Dysplasia of the Anhydrotic Type, Ann. Int. Med. **5**: 358-370 (Sept.) 1931. A complete bibliography up to 1933 is given by Gordon and Jamieson and also by Jadassohn: Handb. d. Haut- u. Geschlechtskr. **4**: 44, 1933. See also Herbert, J. M., and Garland, Joseph: Hereditary Ectodermal Dysplasia of the Anhydrotic Type, with Case Report, New England J. Med. **210**: 784-785 (April 12) 1934.

of the bone typical of exostoses of the inner table of the skull, a hitherto undescribed feature of hereditary ectodermal dysplasia of the anhydrotic type.

REPORT OF CASE

History.—H. K., a man, aged 23, a German, complained of weariness in the late afternoon, weakness of the lower limbs and very often toward evening a slight rise in temperature (from 37.5 to 37.7 C., or 99.5 to 99.8 F.) which prevented him from working.

Even as a child his hair was quite sparse. At the age of 17 he lost his hair entirely and a lanugo-like fine hair began to grow in its place. He stated that the axillary and pubic hairs never developed completely. Only a few short brittle hairs were noted in the axillae and over the pubes. The first teeth developed incompletely. From the history it was learned that there had never been complete development of the decidual teeth. In fact, the incisors never appeared. Before his sixteenth year he had never perspired. As a boy, physical exertion produced no moisture of the skin, only palpitation. He was unable to play with other children during the summer months, as he became exhausted rapidly. Since the age of 16 he had begun to perspire but the sweating, which came on chiefly after exertion, was slight, inconstant and in his opinion insufficient. At the time of examination he felt very uncomfortable and was unable to continue his work during hot weather. Weakness in the legs, shortness of breath and slight tremor of the extremities followed even relatively slight exertion.[2]

Examination.—He was 182 cm. in height and weighed 70 Kg. The skull was enlarged in circumference (61 cm.). The forehead was abnormally high and vaulted. The bones of the face were small. The outlines of the head resembled a hydrocephalus. There were only a few fine lanugo-like hairs scattered over the

Fig. 2.—Side view of skull.

scalp, and a few scant short hairs were observed in place of the eyebrows. There was a lack of secondary sex hairs; only a small number of short, dry hair stumps were seen in the axillae and mons veneris. No hairs were present on the forearms or legs. The root of the nose was sunken; the forehead bulged over the root of the nose. The peculiar shape of the nose has been described as a saddle nose in the literature. A saddle nose is formed by a defect of the nasal bones, especially the median bone. The outline of the nose in this disease, however, does not result from a defect in the nasal bones but is due to an abnormal prominence of the forehead. The lips were negroid. The outlines of the skull, nose and lips are similar in all cases in which photographs are published. In

Fig. 3.—Front view of skull.

fact, all these patients resemble one another so closely that they might be members of the same family. The front teeth of the upper and lower jaw were artificial. Roentgen examination showed atrophy of the middle parts of the jaws and confirmed the reports of the patient that the greatest number of the anterior teeth had never developed. Both tonsils were present. There was no secretion from the nose or pharynx.

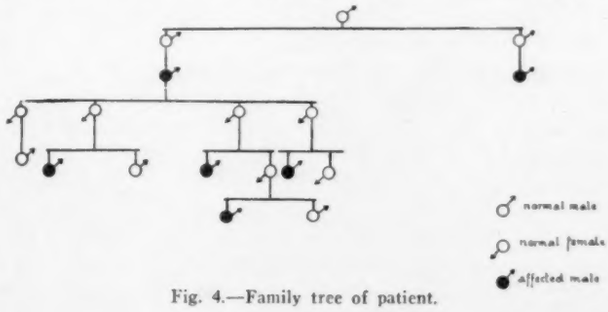

Fig. 4.—Family tree of patient.

The ozena mentioned in most of these individuals was not observed in this patient. The sinuses were abnormally small in the roentgenogram. The skin was dry and smooth, almost feminine in character. Pigmented areas were noticed in the back and on the abdomen. The color of the pigmented areas was brownish gray and cloasma-like. There was no hyperkeratosis. The thyroid was normal in size. No glands were palpated in the neck, axillae or groin. The thorax was normally developed. Clinical and roentgen examinations of the lungs were normal. The heart was normal in size, being 8 cm. to the left of the midline and 4 cm. to the right. There were no murmurs. The rhythm was normal. The blood pressure was 90 mm. of mercury systolic and 60 diastolic. The liver and spleen were not enlarged. The sex functions were normal. Knee and ankle tendon reflexes were normal. The Babinski reflex was negative. The daily oscillation in temperature was

2. He complained of these symptoms very frequently to his physician, but the only objective finding was a slight rise in temperature when he felt exhausted. The physician suggested an endocrine disturbance.

usually greater than 1 degree centigrade, from 36.2 to 37.5 C., or 97.1 to 99.5 rectal. After exercise the temperature rose above 38 C. (100.4 F.).

The formation of the cranium resembled somewhat the shape of an oxycephalic skull. The sutures, however, were all present, including a persistent frontal suture. There was marked bony overgrowth of the sinus table, which formed edges projecting into the cranial cavity (general exostosis of the inner table). In contrast to the large cranium, the facial bones were underdeveloped, particularly the mandible and the maxilla. All the sinuses were small. The medial and lateral incisors in both jaws were absent or incompletely developed.

Urinalysis was negative for albumin, sugar and urobilinogen. The sediment contained some leukocytes. Blood examination revealed hemoglobin 95 per cent, erythrocytes 5,200,000 per cubic millimeter, leukocytes 5,800 per cubic millimeter, polymorphonuclears 57 per cent, band forms 3 per cent, lymphocytes 37 per cent, monocytes 3 per cent. Fasting blood sugar was 70 mg. per hundred cubic centimeters. The sugar tolerance curve after the ingestion of 100 Gm. of dextrose was 72 mg. fasting, 107 mg. in one hour, 130 mg. in two hours and 82 mg. in four hours. The basal metabolic rate was +16½.

COMMENT

Anhydrosis.—The patient was unable to sweat before the age of 16. He then would sweat very slightly following activity. However, weariness, quivering of the lower extremities and slight elevation of temperature still occurred toward evening. In the previously described cases the absence of the sweat glands was a permanent feature. In this patient sweating occurred at the age of puberty but so inadequately that only a small amount of perspiration was produced. The temperature rise following exertion and warm baths has been described in those cases in which observations of the temperature have been made. It is probable that this symptom occurs in all cases of hereditary ectodermal dysplasia of the anhydrotic type. The slight rise of the metabolic rate is doubtless caused by the fact that the body is unable to perform its physical regulation of heat because of the absence or incomplete development of the sweat glands. Woodyatt at the latest meeting of the American College of Physicians pointed out that symptoms of masked hyperthyroidism (slight temperature rise, fatigue and tremor) may occur in patients with ichthyosis universalis as a result of their inability to perspire adequately.

Genealogy.—The pedigree of the patient demonstrates inheritance of recessive characteristics obligatory to sex. The description of rare cases of hereditary ectodermal dysplasia of the anhydrotic type in females indicates that exceptions to this rule of inheritance may occur.

Adrenal Medulla.—The patient presented signs strikingly suggestive of insufficiency of the adrenal medulla; to wit, low fasting blood sugar, flat sugar tolerance curve, scattered pigmentation of the skin (not mucous membranes) and low blood pressure. Embryologically the adrenal medulla is of ectodermal origin. It seems in this case that the adrenal medulla may also be involved in the hereditary ectodermal dysplasia of the anhydrotic type.

Abnormality of the Skull.—Roentgenograms of the skull present a striking deformity with exostosis of the inner table. The skull, however, is not of ectodermal origin but is developed from the mesoderm. Although roentgenograms of the skull in previous cases are not available, it is probable that all cases of hereditary ectodermal dysplasia of the anhydrotic type show this characteristic deformity of the cranial bones, since all the published photographs exhibited great similarity of contour. The resemblance is so striking that, as I have stated before, these patients seem to be members of the same family. Furthermore, the constant deformity of the nose, which has been erroneously termed saddle nose by previous investigators, is evidently not a defect of the nasal bone but rather a bulging of the frontal prominence and a depression of the base of the nose resulting from a narrowing of the sinuses.

POLYPOSIS OF THE COLON

REPORT OF A CASE

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TAMPA, FLA.

Despite the relative infrequency of its occurrence, a developing knowledge of polyposis of the colon has stimulated increasing interest in this disease. As early as 1721, Menzel [1] reported a case in which there was a general inflammation of the intestinal tract with a number of wartlike excrescences in the colon. In 186 Luschka [1] described a colon containing thousands o polyps from the ileocecal valve to the anus, varyin in size from a hempseed to a bean. Cripps [1] in 188 observed three cases occurring in the same family. Th more recent literature on this subject bears such we known names as those of Murphy,[2] Lockhart-Mum mery,[3] Erdmann,[4] Morris,[4] Gant,[5] Soper,[6] Doering and Coffey.[8]

For purposes of standardization, Erdmann [4] sug gested that the term "polyposis of the colon" be limite to designate an adenomatous hyperplasia of the intes tinal mucous membrane as opposed to those polypoi tumors of the intestine which are histologically fibr mas, myomas, lipomas and angiomas. The diseas appears to be a uniform, nonspecific reaction of a pre ternaturally sensitive mucous membrane to a chroni irritant, a reaction which is variable only in degree. It is manifested grossly as scattered intralumenary tumors varying in size from a split pea to a grapefruit and has a specific predilection for the large intestine and the rectum. This predilection increases in direct proportion to distance from the ileocecal valve.

The simplest classification of this disease is that of Erdmann and Morris,[4] which divides it into the adolescent and adult types. The adolescent or congenital disseminated type manifests itself in early youth, is characterized by chronic recurring attacks of intestinal hemorrhage and diarrhea, and shows a tendency to occur in members of the same family. The adult or acquired type first appears in adult life in association with frank evidences of chronic traumatic and inflammatory lesions, to which it is evidently secondary. The two types have in common a marked predilection for the large intestine, an incidence of malignancy of more than 40 per cent and a tendency to chronic intestinal hemorrhage and diarrhea. They are dissimilar in that in the

1. Cited by Graham.[10]
2. Murphy, J. B.: S. Clin., Chicago **5**: 447, 1916.
3. Lockhart-Mummery: Proc. Roy. Soc. Med., 1918-1919, sect. XII, Surg., p. 43.
4. Erdmann, J. F., and Morris, J. H.: Polyposis of the Colon, Surg., Gynec., & Obst. **40**: 460 (April) 1925.
5. Gant, S. G.: Diseases of the Rectum, Anus and Colon, Philadelphia, W. B. Saunders Company **2**: 249, 1923.
6. Soper, H. W.: Polyposis of the Colon, Am. J. M. Sc. **151**: 405-409 (March) 1916.
7. Doering, Hans: Die Polyposis Intestini und ihre Beziehunge zur Carcinomatosendegeneration, Arch. f. klin. Chir. **83**: 194, 1907.
8. Coffey, R. C.: Colonic Polyposis with Engrafted Malignancy, Ann. Surg. **83**: 364 (March) 1926.

adolescent type the polyps appear in almost countless numbers, are widely disseminated and show no gross evidence of a causative lesion, while in the adult type they occur in limited numbers and extent and almost invariably are associated with gross evidence of trauma, inflammation or foreign body. The one is essentially a disease of early life, the other of middle or late life, occurring as the cumulative result of prolonged irritation incident to years of functional activity of the intestine. Woodward [9] proposed a third grouping, characterized by the formation of polyps arising from islands of mucous membrane isolated in the bases of dysenteric ulcers and designated as "pseudopolyposis of the colon."

Graham [10] stated that the diagnosis of the adolescent or congenital type may be definitely established or rejected by sigmoidoscopy, as in this form of the disease the polyps extend down to the anus. Erdmann,[4] however, noted an occasional exception to this usual observation.

In 1928 Hullsiek [11] reported a study of all cases of the adolescent type of polyposis of the colon appearing in the literature and added one case that came under his observation, making a total of 127 cases. Since all cases listed as multiple polyposis of the colon were included, it is probable that at least a number did not belong to the congenital type; but some that were given in sufficient detail to mark them as obviously belonging to the acquired type were excluded. In this series, 66 per cent occurred between the ages of 15 and 35, 53 per cent occurred in men and 47 per cent in women, malignant disease was known to be present in forty-two cases, and in thirty-one other cases in which the presence of a malignant condition remained in doubt the patients died rather early of cachexia, inanition or bleeding. It is only fair to assume that the index of malignancy is actually higher than the figures represent. Mummery [12] stated that "almost all cases of multiple polypi of the colon eventually become malignant." The high incidence of malignancy is a factor of primary importance, which must be considered in the treatment of this disease.

Therapy naturally falls into two classes, palliative and radical. Because of the serious danger of malignant transformation, palliative measures such as cecostomy and appendicostomy are not to be considered except in the exceptional case. On the other hand, surgical extirpation of the entire large intestine or several segments of it is a formidable procedure and is not to be undertaken lightly. Usually there is present a complicating anemia or some other debilitating condition.

Extirpation of the colon for diffuse lesions may be undertaken with two objectives in mind. If the polyps are largely confined to the colon proper, one considers sacrifice of the large intestine and the transplantation of the ileum into the rectum, thus saving the sphincteric mechanism. Small polyps that are present in the rectum may be destroyed by fulguration. When the rectum is involved in such a way as to preclude saving it, a three-stage operation is most desirable: first, an ileostomy; second, subtotal colectomy down to or near the rectosigmoid juncture, and, third, a combined abdominoperineal resection of the rectosigmoid and rectum. A rapid loss of fluids from the body follows an ileostomy and necessitates a considerable amount of rehabilitation before the patient is able to stand an extirpation of the colon without grave danger. It is, however, possible to wait for months between the first and second stages if it is felt that malignancy has not already developed. Again, after the second stage, a rest period may be given the patient before the resection of the rectosigmoid and rectum is undertaken.

In the case here presented, it is problematic whether the polyposis resulted from a bacillary dysentery or whether the dysentery was merely a complicating factor, secondary to the congenital type of polyposis of the colon.

REPORT OF CASE

Mrs. R. G., a Cuban woman, aged 23, was admitted to the Tampa Municipal Hospital June 17, 1933, complaining of fever and bloody diarrhea. She stated that the diarrhea began two months previously with about twenty stools daily and that for the three weeks immediately prior to admission she had been obliged to remain in bed because of weakness. Her history was essentially negative. She had had two children and no miscarriages. There was no history of similar complaints in her family.

Fig. 1.—Appearance after barium sulfate enema.

On admission, her temperature was 103.8 F., pulse 120, respiration 20. The skin was hot and dry. There were several carious teeth. The abdomen was somewhat distended and generally tender, particularly in the left lower quadrant. The spleen was just palpable. Examination of the blood showed hemoglobin 52 per cent, red blood cells 3,800,000, white blood cells 19,000, polymorphonuclears 83 per cent, small lymphocytes 13 per cent, large lymphocytes 2 per cent, transitionals 2 per cent. Urinalysis was negative. A tentative diagnosis of either amebic or bacillary dysentery was made.

The patient continued to have a high fever and had from fifteen to twenty stools daily. July 10 the blood showed a complete agglutination to the Shiga bacillus in 1:80 dilution. Meanwhile the hemoglobin had dropped to 35 per cent with a red cell count of 2,130,000. Following a blood transfusion, July 25, the hemoglobin increased to 48 per cent. The patient was given serum treatment for dysentery but showed little improvement.

In the meantime Dr. Jack Halton, proctologist of the hospital, had examined the patient and on July 10 noted that there was marked proctitis present, extending from the internal sphincter to the sigmoid with a continuous seepage of bright red blood

9. Woodward, J. J.: Am. J. M. Sc. **81**: 142, 1881.
10. Graham, H. F.: Multiple Adenomas of Colon (Polyposis), Am. J. Surg. **5**: 234 (Sept.) 1928.
11. Hullsiek, H. E.: Multiple Polyposis of the Colon, Surg., Gynec. & Obst. **47**: 346 (Sept.) 1928.
12. Mummery, J. P. L.: Diseases of Rectum and Colon and Their Surgical Treatment, London, Baillière, Tindall & Cox, 1923.

from innumerable points over the whole surface of the rectal mucosa, most marked from the internal sphincter to the lower valve of Houston. Proctoscopic examination on July 25 and again on August 4 showed some improvement. Dr. Halton reported on September 1 that there were few bleeding points and that the mucosa appeared practically normal. When the patient was discharged on September 14, she was much

Fig. 2.—Appearance after opaque meal.

improved and was advised to continue treatment at Dr. Halton's office.

September 24, just ten days after being discharged, the patient was again admitted to the hospital. She stated that she had had a recurrence of symptoms because of poor home care and diet. Physical examination was essentially the same as when she was first admitted, but her hemoglobin was down to 23 per cent. Transfusions were performed on October 18 and November 5. She continued to have from ten to fifteen stools daily. Her general condition was perhaps worse; she was very nervous and hysterical and was therefore rather uncooperative and difficult to manage. She was discharged the second time on Jan. 7, 1934.

The patient was admitted to the hospital for the third and last time, Aug. 3, 1934. Her condition had grown steadily worse. She continued to have bloody stools. The laboratory tests for bacillary dysentery were negative, as were also the Kahn and Kolmer examinations of the blood. Transfusions were given on August 21 and 28 and on September 4 and 15, but the beneficial results were only transient.

September 10, after the patient had been given a barium sulfate enema, a roentgen study was made by Dr. J. C. Dickinson. The rectum and sigmoid filled fairly normally, but only after the patient had experienced great difficulty in retaining the solution was the colon finally filled to a point just to the right of the vertebral shadow. There was complete absence of haustration, and the outline of the colon was very irregular with innumerable filling defects throughout. As the observations were not sufficiently diagnostic, a roentgen study of the entire gastro-intestinal tract was made. The stomach was fish-hook in type and orthotonic. Neither in the stomach nor in the duodenum were there filling defects, but in the second portion of the duodenum there was a moderate amount of dilatation. At the end of five hours the stomach was perhaps half empty and the coils of the ileum were definitely dilated. After seven hours had elapsed, practically all the meal was retained in the coils of the small intestine, apparently a normal condition except for dilatation in the coils of the ileum. A very small amount of the meal had passed completely through the colon and could be seen in the rectum. At the end of nine hours the colon was outlined throughout and presented a very feathery appearance with innumerable negative areas surrounded by thin lines of the opaque meal. Three hours later it presented much the same picture except that practically all the meal was in the sigmoid and rectum. The distal five or six inches of the ileum could still be seen barely outlined by a thin streak of the opaque material. At the end of twenty-four hours only a trace of the meal remained in the colon and its appearance had not changed.

In his report Dr. Dickinson concluded: "In trying to visualize the pathology that could produce this very unusual appearance of the colon, it seems necessary to assume the presence of some diffuse pathological condition resulting in a very roughened surface of the mucous membrane with countless elevations allowing the opaque material to settle in the recesses between them. Innumerable small polypi would account for this condition. A roughly granulated surface due to ulceration and growth of granulation tissue might explain it. The delay in the terminal ileum is to me explained as a diffuse reaction of an irritated intestine distal to it. It is difficult to visualize so extensive an ulcer lesion. I am inclined to believe that the condition is one of polyposis."

Because of these conclusions, the medical service requested a surgical consultation. On October 4 an exploratory laparotomy was done. Dr. Halton was present at this operation, prepared to insert a sigmoidoscope into the colon. When the peritoneum was opened, about a liter of clear serous fluid escaped. The cecum was firmly bound down and could not be delivered from the wound. It was therefore deemed inadvisable to open the intestine for the introduction of the sigmoidoscope. Moreover, it appeared that this procedure was not necessary to confirm the preoperative diagnosis. About eight inches proximal to the ileocecal valve, the ileum became markedly constricted and leathery in consistency. Above that point the ileum was distended. The colon was apparently full of solid matter and was ropy in consistency down to the sigmoid flexure, where it returned to normal consistency. The appendix was large, free and normal in appearance. Unques-

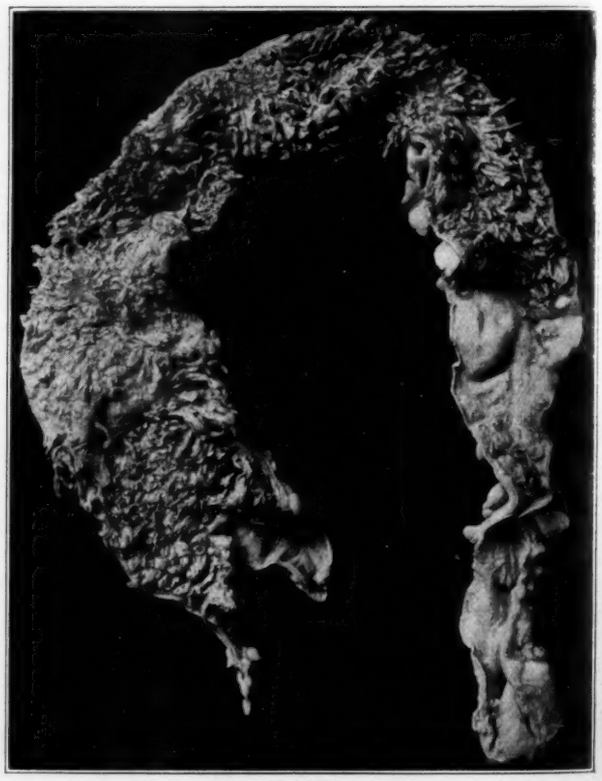

Fig. 3.—Pathologic specimen secured at autopsy.

tionably the condition was one of polyposis. The abdomen was closed in the usual manner without drainage.

The patient grew rapidly worse and died October 10. The condition at autopsy was as follows: There was about a liter of clear serous fluid in the abdominal cavity. The lower 12 cm. of the ileum was moderately and uniformly thickened. The entire colon down to a point 40 cm. from the anus was uniformly and diffusely thickened. The mucosa of the colon down to this point and up to the ileocecal valve was of strikingly shaggy appearance because of innumerable polypoid masses measuring on an average 3 cm. long and from 3 to 4 mm. in diameter. These polypi were either pink or bluish and many were tipped with hemorrhagic areas. The mucosa of the small intestine was normal. In about the center of the descending part of the ileum there was an ulcerated area, but the mucosa was smooth. The principal cause of death was intestinal polyposis; the contributing causes were edema of the lungs and bilateral hydrothorax.

CONCLUSION

The pathologic specimen that confirmed the preoperative diagnosis, made possible by the roentgen study and corroborated the surgical observations, is shown in figure 3. The question arises as to whether the polyposis resulted from a bacillary dysentery or whether the dysentery was merely a complication of the polyposis. I am of the opinion that this case was one of polyposis of the colon of the congenital disseminated type, complicated by a bacillary dysentery that confused the picture and postponed the correct diagnosis until too late for relief to be given.

First National Bank Building.

TRIPOLI AS A SOURCE OF SILICOSIS

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CINCINNATI

Tripoli designates a form of silica much used in industry and is a substance possessing peculiar properties which distinguish it from the better known quartz or amorphous silica. The term "tripoli" is itself confusing, since it has been applied to other minerals, such as diatomaceous earth, and special types of limestone. The outstanding sources of tripoli are in southwestern Missouri and southern Illinois. Tripoli is widely described as amorphous, but at least some varieties are crystalline, although the crystals are so minute as to warrant the term "cryptocrystalline."

Tripoli, when air dried in lumps, is a light, fine textured, minutely porous rock. Its lightness and porosity in its native state are believed to result from the fact that it is the siliceous skeleton of a mineral which in earlier days was much more compact, owing to the coexistence of limestone. The action of water throughout the ages has leached out the calcareous portion, leaving behind the siliceous framework; hence a common name "rottenstone."

The individual grains of tripoli are approximately 0.0004 inch in diameter. After quarrying, drying and pulverizing, tripoli is marketed for a great variety of industrial uses, including polishes for painted surfaces, foundry facings, as an ingredient in paint and soaps, as a filtering medium and as a rubber filler. As most of the uses of tripoli require minute particles, it is reasonable to expect that this material might prove to be a prolific source of silicosis.

Tripoli, however, a mineral consisting of more than 99 per cent silica, is rarely the source of clinical silicosis. In an earlier period, when fallaciously the action of silica in inducing silicosis was attributed to the cutting action of dust particles, the absence of silicosis from tripoli was fully accounted for by the knowledge that tripoli particles are without sharp edges. With the advent of the chemical theory of the action of silica, it became untenable to exculpate tripoli as a source of silicosis because of its surface properties. Lately, in court procedures in which silicosis has been falsely attributed to tripoli, testimony by qualified industrial hygienists has denied that tripoli may be a source of that disease. The chief basis for this attitude lies in the absence of evidence of characteristic silicosis in the roentgenograms made on workers long employed in industries utilizing tripoli.

In order to determine whether or not tripoli is capable of producing silicosis, this substance was included as one of sixty-three minerals or combinations of minerals injected into the peritoneal cavities of animals. The technic employed essentially was that of Miller and Sayers.[1] One-tenth or two-tenths gram of tripoli in 2 cc. of physiologic solution of sodium chloride was

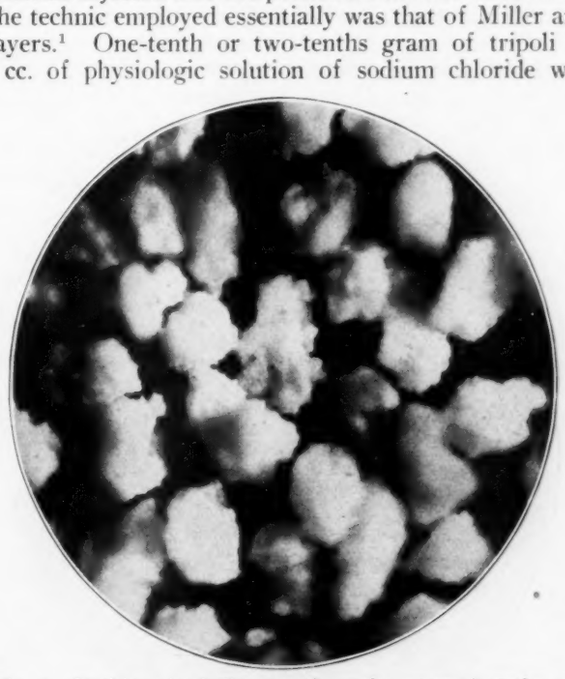

Fig. 1.—Particles of tripoli, suggesting soft, spongy formation and absence of sharp cutting edges.

introduced into the peritoneal cavities of male guinea-pigs. The particle size for one specimen tested ranged below 5 microns, for another below 42 microns. Twenty-eight other substances, similarly injected, served as suitable controls. The total number of animals employed was in excess of 300.

The chief reactions in the peritoneal cavity following the introduction of mineral substances in fine particles are, according to Miller and Sayers, proliferative, inert and absorptive. Silica in quartz and amorphous form, together with minerals possessing a high content of silica, leads to the prompt formation of typical silicotic nodules. The development of proliferative tissue in the peritoneal cavity is presumptive proof that such a dust would be harmful for human beings, under conditions of extensive exposure by inhalation. Other dusts, such as iron oxide, silicon carbide, titanium dioxide and aluminum oxide, lead to inert reactions, such substances merely acting as a foreign body. Other

1. Miller, J. W.; Sayers, R. R., and Yant, W. P.: The Response of Peritoneal Tissue to Dusts Introduced as Foreign Bodies, J. A. M. A. **103**: 907 (Sept. 22) 1934. Sayers, R. R.; Miller, J. W., and Yant, W. P.: Response of the Peritoneal Tissue to Dusts Introduced as Foreign Bodies, Am. J. Pub. Health **25**: 452 (April) 1935. Miller, J. W., and Sayers, R. R.: The Physiological Response of the Peritoneal Tissue to Dusts Introduced as Foreign Bodies, Pub. Health Rep. **49**: 80 (Jan. 19) 1935.

agents, such as limestone, gypsum, silica gel, and magnesium carbonate, disappear through absorption. These reactions are specific for every individual dust.

At the end of thirty days all tripoli-injected animals were killed, together with suitable controls, and inspections were made to determine the type of reaction. In every instance extensive and characteristic proliferation was established as present. The nodules produced were typical of those for quartz silica and in all respects permitted the interpretation that the action of cryptocrystalline silica in the form of tripoli is the stimulation of proliferative responses. In addition to characteristic nodule formation on the anterior abdominal wall, as the chief site, other nodules were irregularly found on the liver, diaphragm, omentum, intestinal wall, mesentery, testes, epididymis, cremasteric muscle and seminal vesicles. So far as reliance may be placed on this experimental procedure for the gaging of the fibrogenic properties of a dust, it is to be recognized that tripoli is similar in its action to other forms of silica.

Notwithstanding the ready demonstration of experimental silicosis from tripoli, the fact remains that workers in industry manipulating tripoli are rarely

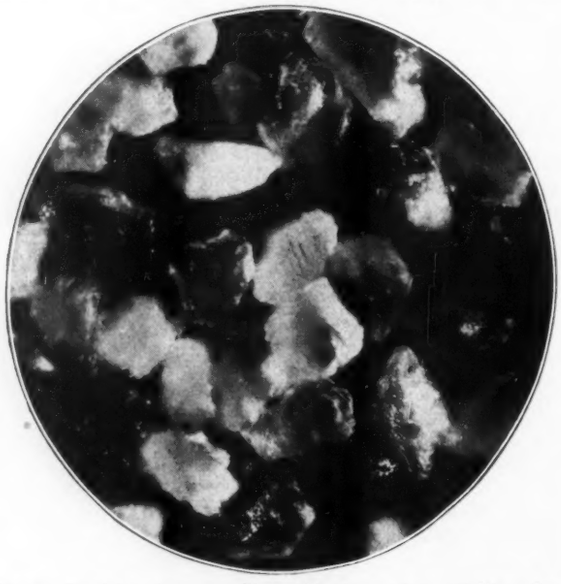

Fig. 2.—Particles of quartz silica, with sharp edges. Neither absence nor presence of sharp edges has any proved connection with the causation of silicosis.

involved and that, when they are affected, the severity of the disease is of low order. No adequate explanation of this can be proffered. In all likelihood no single factor is responsible, but some significance may be attached to the observation that the electrostatic charge of tripoli particles is such that particles tossed into the air tend to agglomerate into small loose clumps or masses and drop to the ground. Because of this property a shovelful of the finest and driest tripoli thrown into the air in an enclosed area falls to the ground with the formation of scarcely any discernible suspended dust. As a consequence, work places in which tripoli is manipulated are relatively free from dust. The electrostatic properties of tripoli particles may serve a highly useful purpose in the avoidance of silicosis in tripoli workers.

SUMMARY

Tripoli, a cryptocrystalline form of silica, readily produces proliferative reactions when injected into the peritoneal cavity of guinea-pigs. In all respects the responses obtained are simliar to those produced by quartz or amorphous silica, similarly introduced. The infrequency of clinical silicosis from tripoli as a cause cannot be attributed to any lack of tissue stimulating properties. The electrostatic charge of tripoli particles, which tends to the formation of small clumps or masses of this suspended dust, may in some measure contribute to the low order of atmospheric dustiness in tripoli work places, and consequently to the low incidence of silicosis from this substance.

34 West Seventh Street.

ENLARGEMENT OF THE LIVER IN DIABETES MELLITUS

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Medical textbooks are brief in their reference to the enlargement of the liver that is now and then found in cases of diabetes mellitus. Friedrich Umber [1] says: "The liver in diabetic patients ordinarily is enlarged when the disease is of long duration. Whether hyperemia, fat infiltration or incipient cirrhosis is the cause often cannot be settled intra vitam." Von Noorden and Isaac [2] refer to the symptom in the following words: "Doubtless, in many diabetic patients there is a moderate enlargement of the liver. Slight tenderness and increased consistency of the organ is most often demonstrated in these patients." However, von Noorden further states that in 25 per cent of the cases the enlarged liver was accompanied by other signs of circulatory disturbances, and he considers the hard and enlarged liver an accidental complication in diabetes mellitus. Joslin [3] makes no mention whatever of enlarged liver as a symptom in diabetes mellitus, but Priscilla White,[4] writing subsequently from the same clinic, reports fatty infiltration of the liver in several young diabetic patients at autopsy and gives x-ray evidence of the decrease in size of an enlarged liver under treatment.

It has therefore appeared strange to me how often we have found enlargement of the liver in young diabetic patients treated at the Steno Memorial Hospital. In two and a half years forty-four diabetic patients under 20 years of age were treated, and twelve of them had enlargement of the liver. During the same period the hospital also treated 231 diabetic patients over 20 years of age, and out of that number one, aged 26, had an enlargement of the liver. These figures are no criterion of the frequency of this symptom, as the hospital preferably admits serious cases of diabetes in young people.

The ages of the thirteen patients, five male and eight female, are given in the accompanying table. No less than ten patients were 15 years of age or under.

All these patients were in a normal state of nutrition; two were shorter than the standard corresponding to their age, but whether this was due to diabetes cannot be decided.

We have attempted unsuccessfully to measure the size of the liver by means of roentgenography and

From the Steno Memorial Hospital.

1. Umber, Friedrich: Ernährung und Stoffwechselkrankheiten, Berlin, Urban & Schwarzenberg, 1925.
2. von Noorden, Carl, and Isaac, S.: Die Zuckerkrankheit und ihre Behandlung, Berlin, Julius Springer, 1927.
3. Joslin, E. P.: Treatment of Diabetes Mellitus, ed. 4, Philadelphia, Lea & Febiger, 1928.
4. White, Priscilla: Diabetes in Childhood and Adolescence, Philadelphia, Lea & Febiger, 1932, p. 169.

therefore have had to be content to measure how far the liver reached below the costal arch in the mediocla vicular line, determined by bimanual palpation with the patient lying on his back. In one patient the liver extended two fingerbreadths below the level of the umbilicus. In five patients it reached the level of the umbilicus. In five it was felt two fingerbreadths below the costal arch. In two the liver was felt a good fingerbreadth below the costal arch.

In all these cases the liver was soft, and softer than is usually found in any other form of enlargement of the liver. The surface was smooth and it was rarely possible to palpate a distinct edge. The liver moved freely during respiration and was not tender. In no case did we find an enlarged spleen, ascites or jaundice, or any sign of circulatory insufficiency.

The common feature in all these cases was a severe diabetes which was difficult to control. The disease had been present for from two to eight years with an average of four years and eight months, and had been treated with insulin for from two to seven years, with an average of four years and two months. With one exception all the patients received insulin twice a day and, in regard to their age, in very large doses. The patient who forms the exception had nevertheless,

Ages of Patients with Enlarged Liver

Number of Patients	Age, Years
1	6
1	8
1	9
3	12
2	13
1	14
1	15
1	18
1	20
1	26

owing to complications, for a long time received insulin twice a day, recently only once a day.

When a case of diabetes mellitus is admitted to a hospital it is always difficult to procure definite information regarding the condition of the patient prior to admission. To procure these particulars as far as possible, we put the patient during the first two or three days on the same diet and insulin as he has been reported to have had at home. Three of the patients had been on full diet minus sugar at home, the others on a diabetes diet containing from 80 to 200 Gm. of bread and in a few cases 50 to 100 Gm. of potatoes.

On admission, one patient, owing to infection, had pronounced acidosis (alkali reserve 38.5 volumes per cent of carbon dioxide). None of the others had a pronounced acidosis, as the ammonia values during the first three days varied between 0.50 and 1.20 Gm.

We determined the blood sugar of these patients fasting at 7 a. m., and at 11 a. m., 2 p. m., 5 p. m. and 10 p. m. Of the thirteen, none had fasting blood sugar values below 300 mg. per hundred cubic centimeters during the first three days of observation. The blood sugar values in the other analyses during the day usually were from 50 to 150 mg. per hundred cubic centimeters. There was considerable glycosuria as a consequence of hyperglycemia in the morning hours.

During the hospital treatment the enlargement of the liver disappeared. How long it took for each of the thirteen patients we are unable to say. If the enlargement was slight we kept the patient only until the diabetes was well controlled, regardless of whether the enlargement of the liver was still present. If the enlargement was considerable, we kept the patient, if possible, until the liver could no longer be palpated.

In the case in which the liver was largest it was ten weeks before the enlargement disappeared. In respect of three of the patients whose liver extended to the level of the umbilicus it took six, fifteen and seventeen weeks respectively for the enlargement to disappear entirely. In a fourth case in which there was as great an enlargement the liver was one fingerbreadth below the costal arch when the patient left the hospital after three weeks' treatment.

In the hospital all the patients were treated with a diet relatively poor in carbohydrates, containing 100 Gm. of bread, 100 Gm. of fruit and greens poor in carbohydrates and, in addition, fats sufficient for the calculated standard metabolism plus 50 per cent. With this diet and ordinary insulin twice daily it was not possible to avert the heavy fluctuations in the blood sugar values in the course of the day. All these patients were therefore treated with protamine insulinate.[5] With this treatment the glycosuria is insignificant and the ammonia values are normal. In many of these patients, however, it was impossible to get Legal's test negative in the urine.

The tests of hepatic function that can be employed in the case of diabetes are of limited value as regards these thirteen patients. We observed the patients only in the period when the enlargement was subsiding, not in the period when it was developing. In five of the patients (including the two with the greatest enlargement) repeated determinations were made of the urobilin quantity in the twenty-four hour urine by means of Schlesinger's test. No pathologic urobilinuria was found, the concentration having been 1 : 10 at the highest. Hay's test revealed no choleic acid. Jaundice was not observed, and the color of the serum according to Meulengracht was under 5 in three of the patients with the greatest liver enlargement. The sedimentation rate of the erythrocytes and hemoglobin quantity in the blood were normal in all the patients.

In these patients one may presume that the liver was enlarged as a consequence of fat infiltration. The pathologic-anatomic description of a fat-infiltrated liver exactly accords with the physical conditions associated with this enlargement of the liver. That the enlargement can disappear so quickly is also an argument in favor of this assumption. Neither the physical conditions nor the clinical examination render it probable that the enlargement has been induced by a cirrhotic liver, a congestion of the liver or a glycogenous liver. We consider that this enlargement of the liver in diabetes mellitus is induced directly by the abnormal diabetic metabolism and that it cannot be regarded as an accidental complication. We have treated many young people with diabetes just as severe as in these thirteen patients without finding any enlargement of the liver, and clinically we cannot find any reason why this enlargement occurs only in some of the young patients with severe diabetes.

It would at first be natural to regard this enlargement of the liver as a link in the chain of symptoms so exactly described by Geelmuyden[6] in dealing with various disturbances in the carbohydrate metabolism. The three principal links are fat migration, fat liver and ketonuria. The last is a constant symptom in these

5. Hagedorn, H. C.; Jensen, B. N.; Krarup, N. B., and Wodstrup, I.: Protamine Insulinate, J. A. M. A. **106**: 177 (Jan. 18) 1936.
6. Geelmuyden, H. C.: Ueber Fettwanderung, Acta med. Scandinav. **54**: 5 (Nov.) 1920.

disorders, and, as it was not found in these patients prior to admission to the hospital, the enlargement of the liver cannot be regarded as a link in this chain of symptoms.

Clinical Notes, Suggestions and New Instruments

ARGYRIA BECOMING MANIFEST IN PREGNANCY

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AND
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Since Angelus Sala in 1647 first reported a case of argyria, accounts of a similar nature have been by no means uncommon. However, a case in which argyria seemed to become manifest because of pregnancy presented a problem in physiochemistry worthy of consideration and report.

A woman, aged 47, admitted to the clinic Aug. 23, 1935, complained of gas on the stomach, abdominal distention, and discomfort in the right upper quadrant of the abdomen. It was found that she had gallstones; subsequently cholecystectomy was performed and was followed by uneventful convalescence.

The features in this case that we wish to consider were in no way related to the diseased gallbladder. Although the patient made no complaint of the peculiar color of her skin, we were immediately struck by the condition. On inquiry, she gave the following story:

Fifteen years before, she had undergone tonsillectomy. Following the tonsillectomy she had sprayed her throat with mild protein silver and, since her physician had told her that it would do no harm, she had continued the use of the spray twice a day for almost five years. Near the end of this five-year period she had gradually discontinued the practice, so that for six months prior to the beginning of a pregnancy, nine and a half years before, she had not used it. In the first month of pregnancy she began to notice a bluish discoloration around the nose, and this discoloration gradually spread over the entire body. Within one month after the onset the peculiar discoloration had become intense and it had remained about the same for the last nine and a half years, although the woman never had resumed medication with mild protein silver. The pregnancy was without incident except that morning vomiting was unusually severe. The woman gave birth to a normal baby, whose skin has never shown any trace of the bluish discoloration.

On physical examination it was easy to make the diagnosis of argyria. The skin over the woman's face and neck was a dusky, bluish gray; the upper extremities, including the finger nails, were also a dusky blue, and the thorax and, to a lesser degree, the lower extremities were discolored. She presented somewhat the appearance of a deeply cyanosed patient. The sclerae were clear and there was practically no discoloration of the gums. When the cholecystectomy was performed, it was found that the stomach and intestine were likewise colored a bluish gray. Microscopic examination of the gallbladder and appendix, which were removed at operation, disclosed silver granules in the tissues, and on chemical analysis it was found that there was 0.3 mg. of silver in 4 Gm. of gallbladder. Thus, the diagnosis of argyria was confirmed.

This case presented an interesting problem in physiochemistry. The usual history in silver poisoning is that the discoloration of the skin gradually becomes manifest. Zacks[1] reported a case in which the argyrosis came on suddenly following exposure to ultraviolet rays from a lamp, but rapid discoloration of the skin is not generally the rule. In our case, the question arises as to why the discoloration developed rapidly, early in pregnancy, six months after discontinuance of the medication with mild protein silver. It is also of interest that the baby escaped the argyrosis.

Much less is known of the pathology and chemistry of argyria than of the symptoms. It is common knowledge that colloids do not usually diffuse through animal membranes; therefore, in colloidal silver solutions the silver ions must be freed before they can enter the tissue fluids. Once liberated, the silver ion forms complex, but soluble, compounds of silver in the intercellular tissue fluids. According to Scheffel,[2] when the silver-laden tissue fluids reach the intracellular substances, colloidal compounds of silver may again be formed, which go through chemical alterations in which the silver ion is once more split off. If a definite balance can be maintained between silver in the tissue fluids, particularly the intracellular elements, and their final deposition, deposits of silver, or argyria, can be avoided. Scheffel, however, wrote "It is conceivable that a great many physical as well as chemical alterations may take place within the cellular elements which may entirely prevent the dissociation from the cell of silver ions. . . . What may occur to prevent the silver ion from leaving the tissue cells? . . . If a state of partial dehydration or a state of alkalinity should exist, . . . the intracellular ionic silver either could not at all leave the cells or its normal exit may be considerably retarded—thus leaving an intracellular disposition for the subsequent formation of macroscopic symptoms of argyria."

This explanation of the physiochemistry of argyria may answer the question why the discoloration occurred rather suddenly in our case early in pregnancy. Prior to pregnancy there was probably a balance of the intake and outgo of silver within the cells. In the course of pregnancy the patient vomited a great deal and this may have resulted in mild dehydration, which prevented the intracellular ionic silver from leaving the cells. It seems rather certain that a disturbance of metabolism of some sort, attributable to pregnancy, must have been responsible for the appearance of the argyria. This supports Scheffel's contention that argyria may be prevented in most cases by careful attention to the patient's metabolism of water and chloride.

From the Division of Surgery, the Mayo Clinic.

1. Zacks, M. A.: Argyria in a Child Following Intranasal Use of Argyrol, Laryngoscope **43**: 680-686 (Aug.) 1933.

2. Scheffel, Carl: The Physiochemistry of Argyria, M. Rec. **140**: 205-207 (Aug. 15) 1934.

CARDIOVASCULAR AND PERIPHERAL VASCULAR DISEASES

TREATMENT BY A MOTORIZED OSCILLATING BED

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It has long been known that improvement in peripheral blood circulation and cardiac efficiency can be obtained by certain postural changes, utilizing the effects of gravity to facilitate improved blood flow and tissue fluid exchange. This has been accomplished by elevation of the extremities, changing the position of the trunk and the application of elastic pressure over the more distant portions of the circulatory tree. The means adopted to accomplish these ends have included attachments to the ordinary hospital bed, specially designed chairs or mechanical arrangements in which centrifugal force can be used and, in addition, certain negative and positive air pressure machines.

Fig. 1. Oscillating motorized bed adjusted so that the excursion of the bed will be an approximately equal 13 inch drop of each end alternately. Two speeds are available, three and one-half or seven and one-half minutes from low foot to high foot and return.

My interest in the problems of peripheral edema dates back several years. I observed that elderly patients with fractures of the lower extremities necessitating immobilization for several months developed edema that persisted for unduly long periods of time. Following the institution of postural changes in these cases, wherein the vessels were completely emptied by elevation

Fig. 2.—Adjustment for failing compensation with edema of extremities and lungs. When thus set, the bed has the extent of excursion shown in this illustration and in figure 3. With the back elevated, the patient rarely suffers from dyspnea. With the crank adjustment at the foot of the bed, the excursion can be set for any degree of low head position desired as the patient improves.

and completely filled by lowering, the edema would rapidly disappear. Similar postural changes regularly instituted were tried on patients suffering from cardiac edema, with surprisingly good results. The accomplishment of these postural changes in cases of cardiac insufficiency could be obtained only through active movements, inconvenient and exhausting to the patient.

Fig. 3.—Adjustment for failing compensation with edema of extremities and lungs. Compare with figure 2. Note that the frame does not go lower than level.

This bed has been made and introduced as a convenient and comfortable method of accomplishing these postural changes regularly and systematically as well as passively on the part of the patients, who remain in a state of relaxation in bed with complete conservation of their energy.

Patients actually enjoy the continuous alteration of posture with its changing distribution of body weight against the bed. Peculiarly enough, patients suffering from myocardial insufficiency with pulmonary edema tolerate the excursions of the bed without pronounced dyspnea.

I have concluded from observation and treatment of a number of patients that, by utilizing gravity completely to empty and fill the veins and capillaries intermittently and regularly, it has a beneficial effect in many cardiovascular and peripheral vascular diseases. Unquestionably, filling and emptying the veins and capillaries at regular intervals represents a type of vascular gymnastics which restores their muscle tone.

Clinical improvement of patients treated on this oscillating bed for congestive heart failure with resultant disturbance in distribution of tissue fluid manifests itself in two ways: (*a*) by utilizing gravity to facilitate the return flow of blood to the heart, subsequently restoring lost muscle tone, and (*b*) by improvement in cardiac function. Physiologically, the so-called law of the heart may explain this fact. This law, in brief, states that a rapid inflow of blood with thorough distention of the heart chambers results in a full force contraction, while a slow inflow with imperfect filling results in a weak contraction.

In peripheral vascular diseases of diabetic, arteriosclerotic or thrombo-angiitic types treated on this bed, marked improvement in local circulation is noted. This is indicated by a definite improvement in the temperature of the affected part as well as relief of pain. It is also noted that ulcers heal and the progress of gangrene is stopped.

Fig. 4.—For postoperative treatment, hip fracture and similar conditions. This illustration and figure 5 show the toggle attachment which reduces the cycle from approximately 26 inches to one of 10 inches. The advantage in this attachment is a "level mattress," as the excursion is so slight that the patient does not slide and no elevation of knees or head is necessary. This cycle cannot be altered with telescopic pitman.

Physiologically, the improvement is due to two factors: (*a*) relief of venous stasis and back pressure, and (*b*) intravessel aspiration, promoting better arterial blood supply.

I realize that there are other factors outside the circulatory tree which influence the distribution of tissue fluid and its

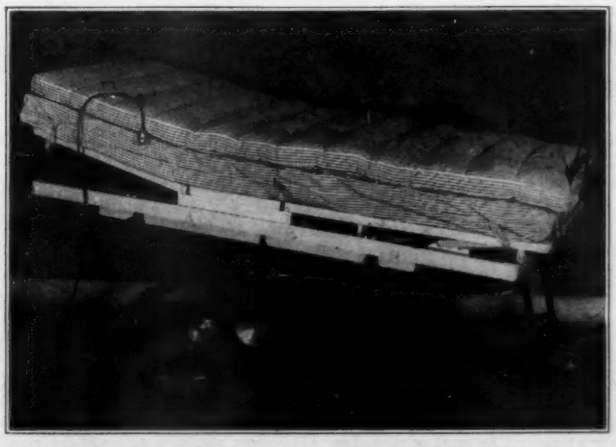

Fig. 5.—For postoperative treatment, hip fracture and similar conditions. Compare with figure 4.

constituents resulting in abnormal collections of tissue fluid, which are not amenable to improvement of the circulatory state but necessitate other therapeutic principles not within the realm of this presentation.

The device herein presented provides a means of applying the principles of gravity to the actual treatment of patients in a convenient and comfortable manner. In brief it is a motorized hospital bed, with two speeds, which alternately elevates and lowers the head and the foot. The amplitude and rate of

oscillation are adjustable in a simple manner. The motor control button is placed near the patient, so that he or the attendant can interrupt the excursion at any desired position.

I am convinced, from a study of results obtained through the utilization of gravity in the treatment of a number of patients with myocardial insufficiency during the past three years, that improvement is more certain and rapid than that which can be obtained through the use of the more conventional methods; also that when compensation and vascular tone have been restored, the improvement is more permanent. It is not implied that the cardiac patient must resign himself to this continuous treatment after restoration of vascular and cardiac tone. Studies are being made in several institutions to determine the applicability of this method of treatment in a wide variety of cases.

MECHANICAL CONSIDERATION OF THE BED

The frame of the bed is substantially constructed of cast iron and consists of two segmental side members, which are securely braced by the tube and tie-rod method. The frame is mounted on rubber-tired casters, which assure quick, easy and noiseless movement about the room. Attached to the spring portion of the bed are two horizontal racks, which engage the teeth of the segments of the frame thus admitting a free, smooth and quiet movement in the operation of the bed.

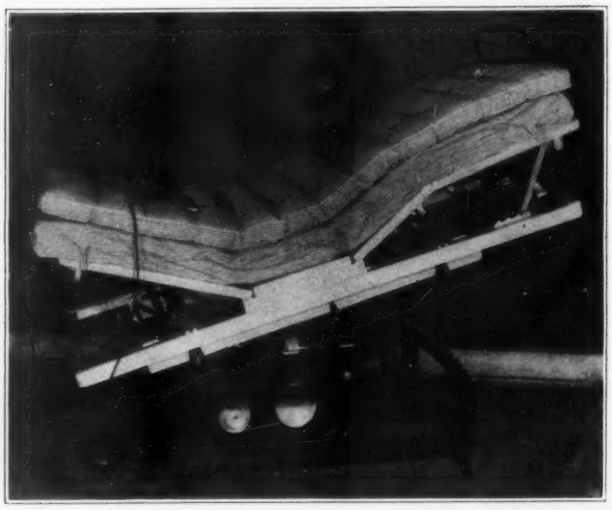

Fig. 6.—For peripheral vascular diseases. The telescopic pitman is adjusted with crank and set so that the cycle of low foot and high foot will be equal.

The power plant consists of a specially constructed ball bearing worm type gear case with a speed reduction of approximately 6,000 to 1. It is driven by a one-third horse power motor with V belt and pulley drive. The motor, in addition to its cushioned base construction, is mounted on a spring steel plate which causes it to float, reducing vibration and insuring reasonably quiet operation.

A pair of disks, one at each side of the transmission case, having wrist pins which engage the lower ends of the pitman, furnish the driving force which propels the spring portion of the bed. The pitman, which is of the telescopic type, is attached to a cross member at the foot of the spring portion of the bed and may be lengthened or shortened by a simple screw adjustment operated by a crank at the foot of the bed.

For an extremely short cycle in the movement of the spring portion, a separate toggle attachment is provided which may be attached in a few minutes, allowing the bed to operate continuously throughout the day or night without back rest or knee elevations. The drop of either end of it is so slight that the patient does not slide on the mattress. One crank answers for the adjustment of the head or lower extremity elevations as well as for the operation of the telescopic pitman, which produces a greater or lesser cycle of movement of the spring portion of the bed. Three and one-half minutes is required for one complete cycle from low to high point and return. The patient, or attendant, may stop this cycle at will in any desired position.

1401 Southwest Boulevard.

FULCRUM FOR BONE FORCEPS

(AN INSTRUMENT TO BE USED IN CONJUNCTION WITH LION-JAW FORCEPS)

HAROLD LUSSKIN, M.D., NEW YORK

Most surgeons have had occasion to use profanity when trying to approximate overriding ends of fractured long bones, even when these ends are exposed to view through an incision. Traction with the patient on the operating table seems insufficient and uncontrolled as to both force and direction. Besides, even though the ends of the fragments are held in the grasp

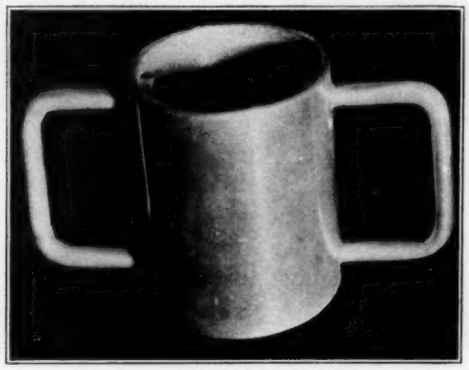

Fig. 1.—Pipe fulcrum, made of a piece of 1½ inch pipe or metal tube to which two loops of brass are fastened. The pipe can be made of brass and the loops welded on. The loops here are held in place by nuts within the pipe.

of the lion-jaw forceps, to pull them down and place them end to end is extremely difficult, sometimes impossible.

It was this difficulty which prompted the construction of a simple device illustrated here. It is easy of manufacture. It acts as a fulcrum for the lion-jaw forceps.

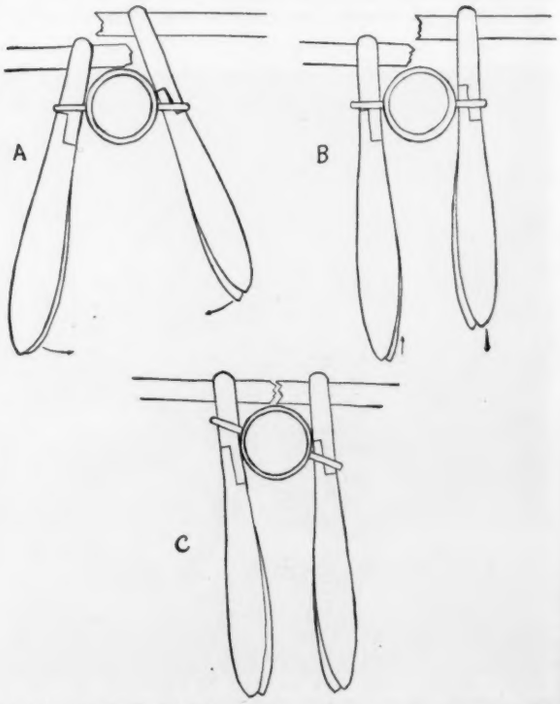

Fig. 2.—*A*, each lion-jaw forceps is passed through a loop in the pipe fulcrum and the fragments of the fractured bone are grasped. The handles of the forceps are approximated as shown by the arrows. *B*, with the handles approximated the bone ends are brought into one plane, correcting the overriding. The handles are then moved in the directions indicated by the arrows on the fulcrum, causing it to rotate until the bone ends are in alinement. *C*, the bone ends are now in alinement. The pipe fulcrum is shown in its rotated position. The bone ends can now be brought together and held by an assistant until they are secured in place.

The instrument (fig. 1) consists of a piece of pipe 1½ inches in diameter and 2 inches long. On opposite sides of this pipe are placed metal loops big enough to permit lion-jaw forceps

to slip through. The forceps are passed through these loops and the bone fragments grasped. The handles of the forceps are approximated, the pipe acting as a fulcrum between them, and the fragments brought into alinement (fig. 2).

41 West Seventieth Street.

LYMPHOGRANULOMA INGUINALE: ITS INCIDENCE IN ST. LOUIS

S. H. GRAY, M.D.; GEORGE A. HUNT, PH.D.; PAUL WHEELER, M.D., AND J. OWEN BLACHE, M.D., ST. LOUIS

For many years, cases of lymphogranuloma inguinale have been reported individually or in small groups under a variety of more or less descriptive names. The literature on this subject has been completely reviewed by Stannus [1] in his recent book and need not be dealt with here. With the advent of the Frei test [2] and its rather widespread use and acceptance, the clinical and public health importance of this disease is only just beginning to be appreciated. The only large series reported in this country is that of DeWolf and Van Cleve,[3] who found fifty-eight positive cases in 1,010 persons tested with the Frei antigen. In St. Louis the first case was described in 1933 by Ives and Katz.[4] In 1935 Rainey and Cole [5] reported twenty-three cases.

In our studies we have tested out, by means of the Frei reaction, the incidence of lymphogranuloma inguinale in the white hospital population at City Hospital No. 1, in the colored hospital population at City Hospital No. 2, and among the prostitutes appearing at the Municipal Venereal Clinic.[6]

The antigens were prepared from colored and white patients according to the directions given by Frei. The pus aspirated from an inguinal node of a patient with a strongly positive Frei reaction was diluted five times with 0.85 per cent saline solution, and heated at 60 C. for two hours the first day and one hour the second day. The product was then tested for sterility by bacterial culture and for activity by intradermal injection of known positive cases of lymphogranuloma inguinale. The patients from whom the pus was obtained for use as Frei antigen were free from tuberculous, gonorrheal, chancroidal [7] and syphilitic infections, and the pus was free from blood.

TABLE 1.—*Results*

	Number of Cases	Number of Positive Frei	Percentage of Positive Frei	Percentage Positive Kahn-Wassermann Reaction: Frei Positive Group	Percentage Positive Kahn-Wassermann Reaction: Frei Negative Group
White, male	51	2	3.4	0	15.1
White, female	68	2			
Colored, male	198	80	40	40	33
Colored, female	275	112	40	26	26
Prostitutes, white	68	3	4.4		
Prostitutes, colored	130	62	47.7		

In several instances when fluctuation did not occur, successful antigens were prepared from the excised nodes. They were ground by shaking with sterile glass beads in approximately five volumes of sterile saline solution.

The antigens used differed in two respects from those used by DeWolf and Van Cleve. Our own antigens were 1:5 pus dilutions (recommended by Frei) rather than 1:10. They contained no preservative, whereas those of the Cleveland investigators contained 0.25 per cent phenol. We refrained from adding any preservative, because we had done no work on the effect of disinfectants on the activity of the antigens. Hence we have used care in handling the antigens and have relied on frequent culture of the material as a check on the sterility of the product. Our antigens have remained active for at least nine months.

Each antigen prepared was used on colored and white patients. The marked difference in the response of these two groups acted as a further check on the antigen.

TABLE 2.—*Results of Tests in Series 1*

	Number of Cases	Frei Negative	Frei Positive	Clinically Active	Clinically Inactive
Male	106	66	40 (38%)	25	15
Female	103	49	54 (52%)	13	41

TABLE 3.—*Results of Tests in Series 2*

	Number of Cases	Frei Negative	Frei Positive	Percentage of Positive Cases
Male	92	52	40	43
Female	172	114	58	34

In table 1, we have summarized the results of our study. The preponderance of this disease in the colored race is outstanding. The white persons in our group come from the lowest economic level. This group would be expected to exhibit the greatest percentage of so-called social disease in their race. By consulting the ratio of positive Kahn reactions in the white and colored groups, the relative proportions of the occurrence of lymphogranloma inguinale become even more striking. Just what factors aside from race susceptibility are involved it is difficult to say. The difference in economic and hygienic standing is too slight to account for a 10:1 ratio. Though most of the white males with clinical lymphogranuloma inguinale gave a history of sexual contacts with colored women, the lack of control figures prevents us from emphasizing anything on this point. Those who have interested themselves in this subject say that interracial sexual relationships are fairly common in this and southern regions.

In the prostitutes we made no attempt to study the presence of active manifestations of lymphogranuloma inguinale, nor did we delve into their histories to determine clinical activity in the past. The Frei tests on the white patients were performed at a time when no clinically active cases were present in the wards of the City Hospital. The Frei tests on the colored patients were performed in two series. In series 1 (table 2), many active cases were in the hospital at the time of study. The clinical features of these cases together with many others will be reported later. The patients for series 1 were derived mostly from the genito-urinary and gynecologic wards. It is interesting that the figures in this table include thirty-five patients suffering from tuberculosis. Only two were Frei positive (5.8 per cent). There was no difference in the range of the age of this group as compared to the others. Evidently the chronicity of and debility produced by tuberculosis greatly diminished the opportunity for sexual contacts. These results, in a way, tend to confirm the accuracy of the Frei test, and they attest the accuracy of the antigens used.

In the second series (table 3), patients in the medical wards were used exclusively. No known clinically active cases were present at the time.

We were greatly surprised to find a history of a previous active lesion missing in most of the patients who gave a positive Frei reaction and had no active lesion at the time. Our tendency was to attribute this to the ignorance of the patients. The evanescence of the primary lesion and the infrequency of

From the Snodgras Laboratory, City Hospitals, Department of Public Welfare, City of St. Louis, and the Laboratory of the Jewish Hospital.

1. Stannus, H. S.: The Sixth Venereal Disease, Baltimore, William Wood & Co., 1933.

2. Frei, Walter: Eine neue Hautreaktion bei Lymphogranuloma inguinale, Klin. Wchnschr. **4**: 2148 (Nov. 5) 1925.

3. DeWolf, H. F., and Van Cleve, J. V.: Lymphogranuloma Inguinale, J. A. M. A. **99**: 1065 (Sept. 24) 1932.

4. Ives, George, and Katz, S. D.: Lymphogranuloma Inguinale (Climatic Bubo), J. Missouri M. A. **30**: 107 (May) 1933.

5. Rainey, Warren, and Cole, W. H.: Lymphogranuloma Inguinale: Its Relation to Stricture of the Rectum, Arch. Surg. **30**: 820 (May) 1935.

6. We are indebted to Dr. Bredeck, health commissioner, and to Dr. Kavanaugh, director of the Municipal Venereal Clinic, for permission to test this group.

7. At the present time a commercial supply of a killed suspension of Ducrey bacillus (dmelcos vaccine) is not available in the United States for therapy or for diagnosis of chancroidal infection by a skin sensitivity test. Our first supply was obtained through the kindness of May and Baker, Ltd., London. The organism has been difficult to obtain in pure culture free from pus or blood. Recently, one of us has described a method of cultivating the Ducrey bacillus for the preparation of a saline suspension (Hunt, G. A.: The Cultivation of the Ducrey Bacillus for the Preparation of Vaccine, Proc. Soc. Exper. Biol. & Med. **33**: 293 [Nov.] 1935). We are now using our own vaccine for the differential diagnosis of chancroid.

the inguinal adenitis in the female may explain the lack of a positive history in this sex. In the few primary lesions in the male that we have seen, inguinal adenitis always followed. But the most persistent questioning failed to elicit admission of active lesions in the past. For example, in the cases in table 3, ten out of the forty males admitted a small penile sore or inguinal swelling, which may have been due to any of the venereal diseases; the fifty-eight women gave a negative history. This may be partly attributed to ignorance, but we feel that the existence of nonclinical lymphogranuloma inguinale as shown by a positive Frei reaction must be recognized. These cases may show mild perirectal involvement and possibly are potential cases of rectal stricture. There may have been tiny primary lesions of such slight duration and extent as to have gone unnoticed. There may have been little or no lymphatic involvement. If we were to hazard a guess, at least 50 per cent of all positive Frei cases will give no history of clinical lymphogranuloma inguinale.

The importance of this cannot be emphasized too strongly. There is an evident danger of attributing many clinical manifestations to lymphogranloma inguinale because of the presence of this skin reaction. Tuberculosis and syphilis judged by the tuberculin and Wassermann tests respectively may be acquired without the symptomatic knowledge of the patient. The same is true of lymphogranuloma inguinale. The presence of a positive Wassermann reaction has misled many a clinician; the same potentiality to mislead is presented by a positive Frei reaction.

Although the number of cases that we have presented here is small and can give only an approximation of existing conditions, there is a sufficient indication of the public health seriousness of this disease. The destructive manifestations in the rectum, vagina and inguinal regions, the relative inefficacy of treatment, and the high rate of incidence place lymphogranuloma inguinale in the colored race in the foreground of public health problems.

CONCLUSIONS

1. In 790 Frei tests on white and colored patients, the incidence of lymphogranuloma inguinale in the whites was found to be 3.4 per cent; in the colored, 40 per cent.

2. A large percentage of Frei positive cases have not shown any clinical manifestations of lymphogranuloma inguinale. In view of this, it is important to exercise care in interpreting a clinical picture in the presence of a positive Frei reaction.

3. In communities with large colored populations, lymphogranuloma inguinale offers a serious public health problem.

216 South Kingshighway Boulevard.

AN IMPROVED CUFF FOR USE WITH THE PASSIVE VASCULAR EXERCISE UNIT

GILBERT J. McKELVEY, M.D., BALTIMORE

Herrmann and Reid [1] and others have proved the value of alternating positive and negative pressures in the treatment of obliterative peripheral vascular disease. One group [1e] employs a negative pressure of 80 mm. of mercury, with a positive pressure of 20 mm. at the rate of two to three cycles per minute. Another group [2] recommends treatment with from 100 to 120 mm. of mercury negative pressure for twenty-five seconds, and a positive pressure of from 80 to 100 mm. for five seconds.

The cuff recommended for use with the passive vascular exercise unit has been described as "a soft rubber cuff which is adjustable to fit snugly around the thigh without causing any obstruction to the return of venous blood." [1e] I have found, using a similar cuff, that to prevent the escape of air during the positive phase it is necessary to have the cuff so snugly applied that the superficial veins are not completely emptied, resulting in a degree of engorgement of the extremity and hence preventing the maximum amount of aeration from being obtained.

In conjunction with the Baltimore division of the Western Electric Company [3] and H. O. Kendall, director of the physical therapy department of the Children's Hospital School, a series of cuffs of various sizes has been designed and produced (fig. 1). These are, in our opinion, a decided improvement on the soft rubber cuffs as distributed with the passive vascular exercise units.

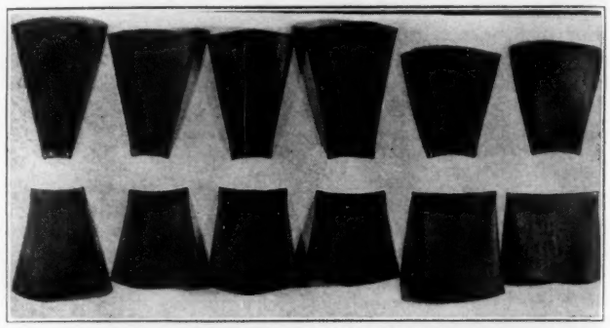

Fig. 1.—Cuffs for use with passive vascular exercise unit.

The cuffs are made of soft rubber, are conical, and average 35 cm. in length. One end of each cuff is of adequate measurement to fit snugly over the open mouth of the boot, while the opposite ends of the cuffs vary in circumference, enabling adaptation to extremities of various sizes and at various levels. The cuffs are employed in couplet and are applied to the extremity as shown in figure 2. At no time is either cuff so tight that it acts as a constricting band.

The extremity is inserted into the boot, *C*, and the distal cuff is folded on itself, the larger end being stretched over the open mouth of the boot. The distal end of the proximal cuff is applied over its fellow. Both are held in place on the boot by a rubber band (fig. 2*D*) 3 cm. wide by 0.9 cm. thick. To ensure satisfactory functioning of the couplet, it is necessary that the cuffs be placed a sufficient distance apart on the limb to prevent their apposition during the positive and negative phases.

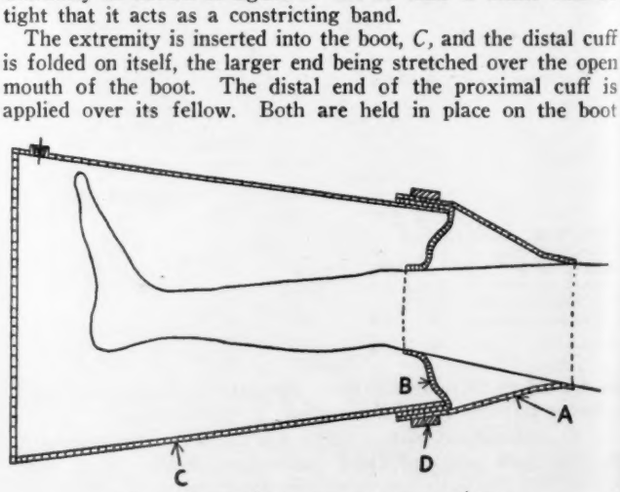

Fig. 2.—Extremity in boot with cuffs applied.

Throughout the negative phase the proximal cuff collapses as the result of the force in the direction of the arrow at *A* and approximates the skin so closely over a wide area as to prevent the entrance of air into the boot. The distal cuff, being within the negative environment, balloons out at *B* in a manner analogous to a dilating vein and becomes loose on the extremity. With the onset of the positive phase, the action of the cuffs is completely reversed. The distal cuff is forced closely against the skin owing to the pressure being exerted at *B* in the direction of the arrow. The proximal cuff becomes distended and,

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From the Children's Hospital School.

1. (*a*) Reid, M. R., and Herrmann, L. G.: Treatment of Obliterative Vascular Diseases by Means of an Intermittent Negative Pressure Environment, J. Med. **14**: 200 (June) 1933. (*b*) Herrmann, L. G., and Reid. M. R.: The Pavaex (Passive Vascular Exercise) Treatment of Obliterative Arterial Diseases of the Extremities, ibid. **14**: 524 (Dec.) 1933. (*c*) Reid, M. R.: Diagnosis and Treatment of Peripheral Vascular Diseases, Am. J. Surg. **24**: 11 (April) 1934. (*d*) Herrmann, L. G., and Reid, M. R.: The Conservative Treatment of Arteriosclerotic Vascular Diseases: Passive Vascular Exercises (Pavaex Therapy), Ann. Surg. **100**: 750 (Oct.) 1934. (*e*) Herrmann, L. G., and Reid, M. R.: Passive Vascular Exercises: Treatment of Peripheral Obliterative Arterial Diseases by Rhythmic Alteration of Environmental Pressures, Arch. Surg. **29**: 697 (Nov.) 1934. (*f*) Herrmann, L. G.: Nonoperative Treatment of Inadequate Peripheral Distribution of Blood, J. A. M. A. **105**: 1256 (Oct. 19) 1935.

2. Landis, E. M., and Gibbon, J. H.: Effects of Alternate Suction and Pressure on Circulation in the Lower Extremities, Proc. Soc. Exper. Biol. & Med. **30**: 593 (Feb.) 1933.

3. Patent applied for.

like the distal cuff throughout the negative phase, plays no part in the closed system. In this manner each cuff functions through the same phase of each cycle to its best mechanical advantage, the distal through the positive, and the proximal through the negative. One cuff is not required to be resistant to both positive and negative pressures but merely to work efficiently throughout one phase of the cycle.

This combination of cuffs, in my hands, has proved entirely satisfactory, and we feel that its use with the passive vascular exercise unit will increase the efficiency of an extremely valuable therapeutic aid.

Greenspring Avenue and Forty-First Street.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

HOWARD A. CARTER, Secretary.

McINTOSH JUNIOR METRO-COAGULATOR ACCEPTABLE

Manufacturer: McIntosh Electrical Corporation, Chicago.

This unit is recommended by the manufacturer to members of the profession who require a high frequency current generator solely for electrocoagulation and electrodesiccation. The firm informs the Council that this unit is not intended for medical diathermy.

Fig. 1.—McIntosh Junior Metro-Coagulator.

The machine was operated for a period of one hour, and the resulting temperature rise of the transformer was within the limits of safety established by the Council. Other electrical parts were inspected and found to be safe and serviceable. The manufacturer states that a d'Arsonval solenoid is employed to generate the high frequency d'Arsonval current. The spark gap is of 8 point (four gap) air-cooled type. Figure 2 is a diagram of the connections. The apparatus is enclosed in a leatherette-covered carrying case and weighs about 18 pounds. The fittings of the unit are chrome plated.

In a clinic acceptable to the Council, the machine was given a practical test over a period of several months. The investigator reported that the apparatus will perform satisfactorily for the purposes for which it is recommended and that it has been used with success for both light desiccation and coagulation of tissues.

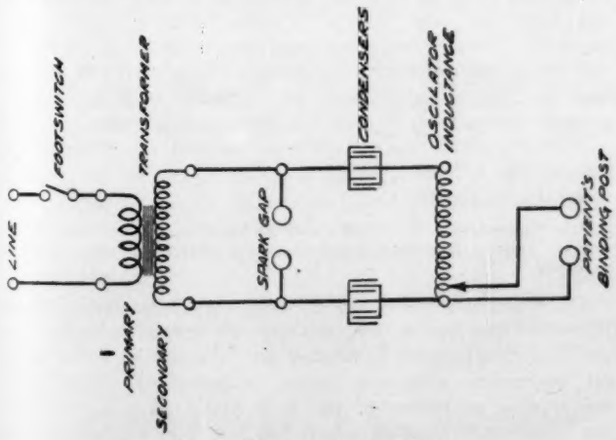

Fig. 2.—Diagram of connections.

The Council on Physical Therapy voted to include the McIntosh Junior Metro-Coagulator in its list of accepted apparatus.

LEPEL DIATHERMY MACHINE ACCEPTABLE (TYPE RFC)

Manufacturer: Lepel High Frequency Laboratories, Inc., New York.

This machine is of the conventional type diathermy unit and is recommended for surgical and medical diathermy. It makes use of the spark gap for creating a high frequency energy.

Lepel diathermy machine, type RFC.

The manufacturer submitted data containing a report of tests of the unit for power input and output, and for its spark gap and transformer temperature rise. The results recorded in the data were in agreement with the observations of the Council's investigator and in conformity with the Council's standards for diathermy machines. The circuit of this machine is similar to that of the Lepel High Frequency Combination Machine, already accepted by the Council.

This machine was used in a clinic acceptable to the Council for several months. It proved to be satisfactory, both as a medical diathermy machine and as a surgical unit.

The Council therefore voted to include the Lepel Diathermy Machine, Type RFC, in its list of accepted apparatus.

ALTHERM SINUS PAD ACCEPTABLE

Manufacturer: Wagenseil Surgical Appliance Company, Inc., Brooklyn.

This heating pad is recommended by the manufacturer as a convenient method of applying heat where heat is required. It is constructed of heavy gage rubber, the bottom or face side being shaped for application to the forehead, with a detachable rubber band for holding the pad to the head. The pad is about 3¾ by 1¾ inches in size and weighs about 8 ounces.

Altherm sinus pad

The manufacturer claims that the mixture (heat retaining element) used in the pad is nonirritating and noninflammable. After the pad has been boiled for a short time, the contents liquefy. After being removed from boiling water and in ordinary room temperature, the mixture gradually recrystallizes as it gives off heat. The action makes use of the latent heat of crystallization. The contents do not need to be renewed.

The total weight of the thermophoric mixture amounts to about 6 ounces avoirdupois, or approximately 148 Gm. of which the component parts are:

Sodium acetate	90.5%	135.1 Gm.
Glycerin	3%	4.5 Gm.
Sodium sulfate crystal.....	2%	3.0 Gm.
Sodium sulfate anhydrus ..	4.5%	6.7 Gm.
	100%	149.3 Gm.

The pad is prepared for therapeutic use by placing it in boiling water and boiling it for not more than ten minutes. After this, the element will be found to be partially liquefied and during recrystallization will give off heat at a comparatively even temperature for approximately one hour, after which the element will have solidified completely. The temperature will range from approximately 114 F. down to approximately 108 F.

The pad cannot be used until boiled, so it is necessarily sterilized before each application.

An investigator tested the pad for the Council in a recognized clinic. He reported that the pad might have value in certain types of frontal sinusitis in which heat is indicated as a therapeutic measure.

Because the pad is considered simple, safe and clinically effective, the Council on Physical Therapy voted to include the Altherm Sinus Pad in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

PHAGOID-STAPHYLOCOCCUS, PHAGOID-BACILLUS COLON, PHAGOID-STREPTOCOCCUS HEMOLYTICUS AND OTHER BACTERIOPHAGE PREPARATIONS OF THE PHAGOID LABORATORIES, INC., NOT ACCEPTABLE FOR N. N. R.

In 1934 the Council sponsored an exhaustive report on bacteriophage therapy by Eaton and Bayne-Jones (THE JOURNAL, Dec. 8, 1934, p. 1769; Dec. 15, p. 1853; Dec. 22, p. 1934) in which it was brought out that in view of the present status of knowledge concerning bacteriophage preparations, none of these products could be accepted for inclusion in New and Nonofficial Remedies. At that time the Council considered the merits of individual commercial preparations, among them a line of products marketed by the Allen-Sandlin Laboratories, Inc., of Louisville. At about that time the Allen-Sandlin Laboratories, Inc., went into bankruptcy and the business was taken over by the Phagoid Laboratories, Inc. The latter concern formally presented for the Council's consideration Phagoid-Staphylococcus, Phagoid-Bacillus Colon and Phagoid-Streptococcus Hemolyticus. In presenting these products the firm expressed a desire to market them in such a way as to obviate the numerous objections raised by the Council in its consideration of the Allen-Sandlin products.

The advertising submitted by the Phagoid Laboratories, Inc., is open to the same objection as was found in that of the Allen-Sandlin Laboratories, namely, that it represents a mixture of some rational and some justifiable statements with numerous unwarranted therapeutic claims, especially as regards the specificity of certain products. In general, the material is overenthusiastic and uncritical. There is so much of this sort of thing that the Council feels it unnecessary to go into detailed discussion of this advertising.

Although it has formally presented for the Council's consideration only the products just enumerated, the Phagoid Laboratories, Inc., has sent advertising matter for others of its "Phagoid" preparations. In the list given in the general booklet "Phagoid, Lysed Bacteria with their Antivirus with the Specific Lysins" apparently a complete list is given, as follows: Phagoid-Arthritis, Phagoid-Mucous Colitis, Phagoid-Catarrhal Mixture, Phagoid-Bacterial Endocarditis, Phagoid-Typhoid, Phagoid-Pruritus, Phagoid-Mixed Infection, Phagoid-Pneumococcus Polyvalent, Phagoid-Gonococcus, Phagoid-Pertussis, Phagoid-Streptococcus, Phagoid-Staphylococcus, Phagoid-Bacillus Colon and Phagoid-Autogenous.

The Council found the following objections to the nomenclature used for these products:

USE OF THE NAME PHAGOID

Regardless of whether used as a proprietary name or as a generic term to apply to all products manufactured by the firm, the term Phagoid seems unfortunate and inappropriate. Literally the term means like, resembling or having the form of a "phage." The products under consideration are said to be mixtures of bacteriophage, lysate and antivirus. The term Phagoid is not only not descriptive of this mixture but conveys an erroneous idea as to its nature; certainly it should not be used as a designation for individual products as it is used in the advertising literature of the Phagoid Laboratories. The use of the term antivirus is regarded as also unfortunate although it seems to be fairly well established in scientific literature and is also used by Besredka as a name for the hypothetic substances in filtrates which specifically inhibit the growth of bacteria and produce rapid local immunization.

USE OF CLINICAL NAMES

The use of clinical names in connection with the use of various Phagoid products, especially when these names indicate conditions of diverse etiology, is highly objectionable; for example, Phagoid-arthritis, -mucous colitis, -catarrhal mixture, -bacterial endocarditis, -pruritus, -mixed infection.

It is doubted whether a potent bacteriophage has been found for the gonococcus or the pertussis bacillus. Phagoid-streptococcus is entirely too general a term and, in fact, so is Phagoid-hemolytic streptococcus.

Since there are a great many different strains of hemolytic streptococci, nonpathogenic, pathogenic and specific for different diseases differing in antigenic structure as well as in cultural characteristics, relatively few of the hemolytic streptococci have been shown to be sensitive to bacteriophage.

The claim for usefulness of Phagoid-mucous colitis is based on the assumption that Bargen's streptococcus or diplococcus is the cause of this condition. This assumption is not well founded and in fact Bargen's organism has not been shown to be a specific entity distinguishable from other streptococci that may be found in the colon.

In view of the exhaustive report on bacteriophage therapy referred to at the beginning of this report, the Council would not be warranted at this time in the acceptance of any bacteriophage preparations for inclusion in New and Nonofficial Remedies. Certainly, the products of the Phagoid Laboratories, Inc., as now marketed, are quite unacceptable. Other objections of the Council to these products may be discussed under the following headings:

BACTERIOPHAGE PREPARATIONS EXPERIMENTAL

The conflicting results reported in the literature regarding the usefulness of bacteriophage preparations clearly indicate that for most of the conditions mentioned in the list of Phagoid products bacteriophage preparations must be regarded as in the experimental stage.

SPECIFICITY OF BACTERIOPHAGE

It is known that although bacteriophages may show considerable latitude in their activity toward different races or even different species of bacteria they often show a very narrow specificity in acting on only certain strains of bacteria within a single species. For this reason it would be necessary to check the action of any particular bacteriophage not only against the strains of bacteria used in its preparation but also against other strains of the same species if a stock preparation of bacteriophage is to be regarded of use in any infection. On the other hand, the listing of Phagoid-autogenous might indicate that the Phagoid Laboratories is prepared to make an autogenous Phagoid from any culture with material submitted. The firm's ability to do this is regarded as a very doubtful possibility. When this report was sent to the firm, it replied concerning this statement: "It has never been stated or inferred that the Phagoid Laboratories were prepared to make an autogenous vaccine from any culture with material submitted." It is pointed out that the statement in question was made on the basis of the following, which appeared in one of the circulars submitted by the firm:

> "The Laboratory will furnish swabs packaged in suitable medium for mailing and will prepare autogenous Phagoid from the organisms submitted."

The Council declared the bacteriophage preparations of the Phagoid Laboratories, Inc., unacceptable for inclusion in New and Nonofficial Remedies because they are offered to the medical profession with unscientific, unwarranted claims, thus encouraging physicians to use in a routine way medicaments the therapeutic value of which has not been established, and because they conflict with other rules of the Council.

When a statement of the Council's consideration was sent the Phagoid Laboratories, Inc., the firm replied expressing its intention to revise drastically its claims and literature in accord therewith. The firm made some minor objections which have been taken into account in preparation of the foregoing statement. The firm's letter, however, offered no basis for modification of the Council's essential reason for rejection of these

products; namely, that there is not sufficient evidence to warrant their inclusion in New and Nonofficial Remedies. The Council therefore reaffirmed its rejection of Phagoid-Staphylococcus, Phagoid-Bacillus Colon, Phagoid Streptococcus Hemolyticus and other bacteriophage preparations of the Phagoid Laboratories, Inc., for this reason and, in order that the medical profession might be informed, authorized publication of this report of its consideration.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

1. DOLE BRAND HAWAIIAN PINEAPPLE SLICES, WATER PACKED
2. DOLE BRAND HAWAIIAN PINEAPPLE TIDBITS, WATER PACKED

Manufacturer.—Hawaiian Pineapple Company, San Francisco.

Description.—1. Canned, peeled, cored and sliced Hawaiian pineapple; processed and packed in water.

2. Canned Hawaiian pineapple tidbits packed in water.

Manufacture.—1. The method of manufacture is essentially the same as for Dole 1 Hawaiian canned pineapple slices (THE JOURNAL, April 8, 1933, p. 1106) with the exception that water is used to fill the cans.

2. The method of manufacture is essentially the same as for Dole 1 Hawaiian canned pineapple tidbits (THE JOURNAL, April 8, 1933, p. 1106) with the exception that water is used to fill the cans.

Analysis (submitted by manufacturer).—

	Sliced, per cent	Tidbits, per cent
Moisture	85.6	88.0
Total solids	14.4	12.0
Ash	0.4	0.3
Fat (ether extract)	0.02	0.02
Protein (N × 6.25)	0.3	0.3
Total sugar as invert sugar	11.6	9.7
Crude fiber	0.3	0.2
Carbohydrates other than crude fiber (by difference)	13.4	11.2
Titratable acidity as citric acid	0.4	0.5
Iron (Fe)	0.0004	0.0003
Manganese (Mn)	0.0003	0.0002
Copper (Cu)	0.0002	0.0001
Calcium (Ca)	0.01	0.01
Magnesium (Mg)	0.01	0.01

Calories.—1. 0.5 per gram; 14 per ounce.
2. 0.4 per gram; 11 per ounce.

Vitamins.—Biologic assay shows canned pineapple to contain vitamin A and to be a good source of vitamins B and C. Practically equivalent to the fresh fruit in A and B, slightly inferior in C.

Claims of Manufacturer.—Fancy grade representing fruit most uniform in color, flavor, texture and workmanship. Packed in water. Practically equivalent to the fresh fruit in nutritional values.

HALE'S PRIDE BRAND PURE GRAPEFRUIT JUICE
HALE'S PRIDE BRAND PURE ORANGE JUICE

Distributor.—Hale-Halsell Company, McAlester, Okla.

Manufacturer.—Dr. P. Phillips Company, Orlando, Fla.

Description.—Canned Florida grapefruit and orange juices sweetened with added sucrose and retaining in high degree the original natural vitamin content; the same as Dr. P. Phillips Pure Florida Grapefruit Juice (THE JOURNAL, Jan. 7, 1933, p. 43) and Dr. P. Phillips Pure Florida Orange Juice (THE JOURNAL, Dec. 3, 1932, p. 1948).

1. HOME BRAND GOLDEN SYRUP
2. FOLEY'S BRAND AMBER SYRUP

Distributors.—1. Griggs, Cooper & Company, St. Paul. 2. Foley Bros. Grocery Company, St. Paul. Subsidiary of Griggs, Cooper and Company.

Manufacturer.—Griggs, Cooper and Company, St. Paul.

Description.—Table syrups; corn syrup with refiners' syrup.

Manufacture.—Corn syrup and refiners' syrup are mixed with boiling water in definite proportions, heated, strained and automatically filled into cans.

Analysis (submitted by manufacturer).—

	per cent
Moisture	23.7
Ash	1.4
Fat (ether extract)	0.0
Protein (N × 6.25)	0.2
Reducing sugars as dextrose	30.4
Sucrose	7.0
Dextrins (by difference)	37.2
Acidity as HCl	0.07
Sulfur dioxide	none
*p*H	5.2

No methods are available for accurately determining the composition of syrups of this nature; therefore the foregoing analysis is roughly approximate.

Calories.—3 per gram; 85 per ounce.

Claims of Manufacturer.—Recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a syrup for cooking, baking and the table.

HOOS' PROTEIN MILK

Distributor.—Louis Hoos, Scientific Milk Products, Chicago.

Manufacturer.—The Borden Sales Company, New York.

Description.—Spray dried mixture of milk curd (casein and milk fat) and cultured skim milk.

Manufacture.—Fresh milk, produced under sanitary conditions, is pasteurized (63 C., thirty minutes), and coagulated with rennin. The curd (casein and fat) is separated from the whey, mixed with cultured skim milk prepared by adding a pure culture starter to pasteurized skim milk and the mixture is spray dried and packed in cans.

Analysis (submitted by distributor).—

	per cent	Diluted with water (3 oz. to 1 quart) per cent
Moisture	2	92.6
Ash	5	0.4
Fat	30	2.5
Protein (N × 6.38)	39	3.0
Lactose (by difference)	21	1.5
Titratable acidity as lactic acid	3	

Calories.—5.2 per gram; 148 per ounce.

Claims of Manufacturer.—For use under the direction of a physician in nutritional disturbances of infancy, or when a modified milk food richer in protein and lactic acid and lower in lactose than dried whole milk is desired.

CELLU BRAND YELLOW STRING BEANS, WATER PACKED

Distributor.—Chicago Dietetic Supply House, Inc., Chicago.

Packer.—Geneva Preserving Company, Geneva, N. Y.

Description.—Canned yellow string beans, packed in water.

Manufacture.—Selected wax beans, picked at the proper degree of maturity, are snipped, sorted, graded, again inspected, blanched, washed and packed in cans. The cans are filled with hot water, sealed and processed.

Analysis (submitted by distributor).—

	per cent
Moisture	94.8
Total solids	5.2
Ash	0.7
Fat (ether extract)	0.1
Protein (N × 6.25)	0.9
Crude fiber	0.4
Starch (diastase method)	2.2
Carbohydrates other than crude fiber (by difference)	3.1

Calories.—0.2 per gram; 6 per ounce.

Claims of Manufacturer.—Choice quality beans packed without added sugar or salt. For use in special diets in which sugar or salt is proscribed or in quantitative diets of calculated composition.

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SATURDAY, MARCH 14, 1936

CONCUSSION OF THE SPINAL CORD

Much more knowledge seems to be available concerning concussion of the brain than of the corresponding lesion of the spinal cord. It is interesting, moreover, that information has accumulated concerning symptomatology of the former condition and pathology of the latter.

The clinical manifestations of concussion of the spinal cord include a multiplicity of clinical pictures, with apparently grave initial symptoms, which disappear or tend to improve rapidly. The symptoms are not, however, always transient in character, and serious, permanent disturbances may result. The condition varies, depending on the particular segment of the cord that is involved as well as on the evolution of the lesions.

Because of its relatively greater fixation and rigidity and its greater exposure to trauma, the thoracic portion of the vertebral column is the most frequent seat of trauma causing concussion of the spinal cord. The trauma need not be direct. It may be transmitted from the vertex or from the sacral region. The earliest symptoms of concussion of the thoracic segment of the spinal cord frequently resemble those of a total physiologic severance of the cord with a complete flaccid motor and sensory paraplegia, urinary and fecal retention, abdominal distention, hematuria, edema of the lower extremities and bed sores. The course is as a rule favorable, with a transition from a flaccid to a spastic paraplegia. A fatal outcome in the course of a few weeks, resulting from an infection from a bed sore or from bronchopneumonia, has been observed.

The simplest form of concussion of the cervical segment of the cord is that with a total loss of function of the spinal cord below the lesion. This concussion gives rise to a quadriplegia associated with anesthesia the upper limit of which corresponds to the lesion. There is retention of urine and feces, abdominal distention and respiratory difficulty if the lesion is sufficiently high. The symptoms may entirely disappear, although certain disturbances usually remain and give rise to definite clinical types. Lhermitte [1] divides these somewhat schematically into the following groups: 1. Spastic quadriplegia, the paralysis being more pronounced in the upper extremities, associated further with sympathetic phenomena such as the Horner syndrome, with vasomotor, sweating, thermic and pilomotor disturbances. There exist as a rule spasticity and incoordination of the lower extremities, with sphincter and genital disturbances. 2. More frequently disappearance of the initial quadriplegia, which leaves in its place a form of spinal semiplegia with a more marked paralysis of an upper extremity, loss of sense of temperature of syringomyelic type and at times most excruciating pains in the upper extremity. 3. Brachial monoplegia associated with the Brown-Séquard syndrome and a rarer form of brachial diplegia. 4. Spastic-cerebellar type, in which disturbances of coordination predominate over the paralytic phenomena. 5. "Formes frustes," a transient type which takes on a functional hysterical character and is characterized mainly by fatigue.

Cases have been observed in which there are bulbar symptoms, such as involvement of the muscles of the neck and the tongue and of sensory distribution of the trigeminal nerve.

Concussion of the lumbar segment is least frequent. It is accompanied by a flaccid paralysis of the lower extremities and involvement of the sphincters. Some time later there develop pathologic tendon reflexes and a positive Babinski reflex. The course is usually favorable, terminating not infrequently in a complete restoration of function.

Concussion of the spinal cord may give rise to clinical syndromes with predominantly sensory disturbances in which radicular pains, causalgic, hyperalgic, shooting pains or heteresthesia may be present. Many observers believe the pathogenesis of these pains to be radicular. Lhermitte thinks they are due to loss of myelin sheaths of the intraspinal fibers, while the causalgic pains are due to lesions of the sympathetic fibers.

In a delayed form, symptoms appear hours, days or even weeks after the trauma. The nerve tissue lesions here are probably due to a progressive arteriopathy (Foerster).

The anatomopathologic changes in concussion of the cord were studied extensively during the World War. There may be small punctate or focal hemorrhages disseminated throughout the white substance or the gray matter, not however as extensive as those seen in hematomyelia. There is no blood in the cerebrospinal fluid. Small islands of focal necrosis disseminated in the white substance, and not always corresponding to the area of distribution of the blood vessel, constitute a more characteristic lesion. Some consider the primary acute degeneration of nerve fibers the most typical lesion in the condition. With proper staining, hypertrophy, thickening and change in form of the axis

1. Lhermitte, Jean: Etude de la commotion de la moelle, Rev. neurol. 39: 210 (Feb.) 1932.

cylinders may be observed. Alterations of the myelin sheaths and a glial reaction are usually present. The spinal canal may be compressed or dilated. Radicular changes either of the hemorrhagic or of the primary degenerative type have been described.

Opinions regarding the pathogenesis of these lesions vary from that of a purely mechanical hypothesis of disturbed circulation, increased pressure in the cerebrospinal fluid and primary physicochemical changes in the cells and fibers of the nervous tissues to that of a hypothesis of cytotoxins developing as the result of trauma and causing more or less extensive softening of the cord.

Concussion of the spinal cord may be considered a definite clinical or at least an anatomoclinical form of traumatic lesion of the spinal cord.

CHLOROPHYLL AND BLOOD REGENERATION

Years ago the suggestion was made [1] that chlorophyll, the green pigment of the leaves of plants, is similar chemically to the nonprotein portion of hemoglobin. Subsequent investigations have borne out this view and have demonstrated that both are composed of a nucleus of substituted pyrrol rings. As is well known, the fundamental difference between the two pigments is that iron is present in hemoglobin whereas magnesium occurs in chlorophyll. The similarity of the two substances has prompted speculation regarding the possible value of chlorophyll as an agent for promoting blood formation. Animal experiments to test the possible existence of such a relation have yielded conflicting results. It has been stated [2] that rabbits rendered anemic by bleeding recover more rapidly if chlorophyll is added to the diet. Somewhat similar results have been obtained by several other investigators in rats [3] and in dogs.[4] Certain of these studies, however, were undoubtedly complicated by the presence of iron and perhaps other contaminants in the chlorophyll preparations used. In contrast to the foregoing favorable results, another group of investigators [5] has found that green leafy plants are not epecially effective in promoting hemoglobin formation in the chronic hemorrhagic anemia of dogs and have concluded that "chlorophyll may be very like hemoglobin in its chemical structure but the normal dog cannot utilize much if any of the chlorophyll nucleus for hemoglobin construction even under maximal stress."

1. Verdeil, M. F.: Compt. rend. Acad. d. sc. **33**: 689, 1851. Hoppe-Seyler, Felix: Ueber das Chlorophyll der Pflanzen, Ztschr. f. physiol. Chem. **3**: 339, 1879.
2. Bürgi, Emil: Cor.-Bl. f. schweiz. Aertze **46**: 449, 1916, cited by Patek.[7]
3. Scott, J. M. D.: Studies in Anemia: I. The Influence of Diet on the Occurrence of Secondary Anemia Following Repeated Hemorrhages in Rats, Biochem. J. **17**: 157, 1923.
4. Binet, Léon, and Strumza, M. V.: Le pouvoir antianémique de la chlorophylle, des sels de fer et de cuivre, le Sang **8**: 1041, 1934.
5. Whipple, G. H., and Robscheit-Robbins, F. S.: Blood Regeneration in Severe Anemia: IV. Green Vegetable Feeding, Am. J. Physiol. **72**: 431 (May) 1925; XIX. Influence of Spinach, Cabbage, Onions and Orange Juice, ibid. **92**: 400 (March) 1930.

Chlorophyll has likewise received some attention as a possible hematopoietic agent in man, and a claim has been made for its beneficial action.[6] These results have been regarded with skepticism, however, since the preparation employed in the study contained only trivial amounts of chlorophyll.[7] The most recent investigation of the effect of chlorophyll in human hematopoiesis [7] was conducted on a group of fifteen adult patients with chronic hypochromic anemia. Chlorophyll and certain of its degradation products were administered to the patients with or without iron and the effect on the proportion of reticulocytes and concentration of hemoglobin and erythrocytes in the blood was closely followed. In all cases the oral administration of the chlorophyll preparations either alone or with small amounts of iron was entirely without effect. However, the administration of the test substances subsequent to the giving of larger amounts of iron produced a noticeable effect. There occurred a second reticulocyte response followed by a rise in the concentration of hemoglobin greater than that observed in the same patient with iron alone. Similar results were obtained when the materials were given parenterally, thus indicating that the effect of the chlorophyll derivatives was not one of increasing the absorption of iron from the gastro-intestinal tract.

While further work is necessary before conclusions are drawn, this investigation does suggest that, in the presence of adequate amounts of iron, the body may be able to use preformed pyrrol substances for the building of hemoglobin. However, as was stated,[7] it should be emphasized that such substances are not recommended for therapeutic purposes, since iron therapy alone is an adequate treatment in most cases of uncomplicated chronic hypochromic anemia.

SEDIMENTATION RATE IN JUVENILE RHEUMATISM

Few recently introduced laboratory tests have been studied in relation to as wide a variety of clinical disorders as the so-called blood sedimentation test. In the rheumatic diseases, for example, most are agreed that the rate of erythrocyte sedimentation usually parallels closely the activity of the disease. Why this should be so, and why there are some notable exceptions, is still largely a matter of conjecture. Payne and Schlesinger [1] have recently reported further studies on the sedimentation rate in juvenile rheumatism.

They first divided their patients on a clinical basis (without reference to the test) into active and nonactive cases. The criteria used were pulse rate, temperature, weight and cardiac signs; in doubtful

6. Bürgi, Emil: Das Chlorophyll als Pharmakon, Leipzig, Georg Thieme, 1932, cited by Patek.[7]
7. Patek, A. J.: Chlorophyll and Regeneration of the Blood: Effect of Administration of Chlorophyll Derivatives to Patients with Chronic Hypochromic Anemia, Arch. Int. Med. **57**: 73 (Jan.) 1936.
1. Payne, W. W., and Schlesinger, Bernard: A Study of the Sedimentation Rate in Juvenile Rheumatism, Arch. Dis. Childhood. **10**: 403 (Dec.) 1935.

cases the cardiac signs were supplemented by the electrocardiogram. Two hundred and twenty-nine children were included in the study. An average of seven sedimentation tests was performed for each patient. One hundred and forty children were included in the nonactive group. Seventy-four of these had no signs of cardiac involvement and with three exceptions showed no rise in the sedimentation test apart from intercurrent infections. Sixty-six children had had heart disease at some time or other. In this group the sedimentation rate was normal in fifty-six and raised in ten (five for only a transitory period). Active rheumatism was present in eighty-nine cases. Sixty-six of these showed rapid improvement and were finally considered nonactive clinically. A corresponding fall to normal was shown by the sedimentation reaction in fifty-eight. In sixteen cases the activity was marked and prolonged. Here without exception the sedimentation rate was raised in close agreement with the clinical condition. In all but one of the seven fatal cases the sedimentation rate also was raised. They concluded, therefore, that it appears justifiable to regard the test as valuable in following the progress of rheumatic children with greater accuracy. Many other conditions, however, besides active rheumatism may increase the sedimentation rate, and some of these were the subject of further investigation.

Acute tonsillitis or nasopharyngitis generally produces a rise in the sedimentation rate. With few exceptions, chronic tonsillar sepsis does not affect the rate. Tuberculosis and rheumatoid arthritis both increase the sedimentation rate and both sometimes enter into the picture of juvenile rheumatism. In acute chorea, strangely enough, if any rise in the sedimentation rate occurs it is usually small and transitory. Congestive heart failure frequently results in a fall of the rate to normal even in the presence of active disease. There is further confirmation of this observation in another current study by Wood.[2] He found that congestive heart failure delays the sedimentation rate regardless of the pathologic changes in the heart. It thus follows that as an indication of the presence or absence of activity the sedimentation rate is a valueless measurement in cases of rheumatic carditis when complicated by congestive failure. Rapid rates are masked, and unless this fact is appreciated serious error in interpretation may occur. The effect of anemia also has been considered. The method of bringing the blood count to normal before performing the test is too cumbersome for routine use. Hence a graph showing the average normal value of the sedimentation rate at any known red cell count was constructed. By comparison of the red blood count, sedimentation rate and graph, apparently satisfactory corrections were readily obtained.

2. Wood, Paul: The Erythrocyte Sedimentation Rate in Diseases of the Heart, Quart. J. Med. **5**: 1 (Jan.) 1936.

Current Comment

TOXIC EFFECTS OF SELENIUM

When attention was directed in January 1935 in these columns [1] to "the selenium problem," it was pointed out that this chemical element had been found in rather large amounts in certain grains and food plants and in soils obtained from several districts of South Dakota and the north central Great Plains area. Further, it was noted that the feeding of the selenium-containing foodstuffs to laboratory animals produced a train of symptoms resembling those of "alkali disease" of live stock foraging in affected areas. The urgent need for further work on selenium particularly with respect to the pathologic effects of the administration of this substance was stressed. Recently an investigation of this type has been reported.[2] The feeding of rats of a small amount of selenium as sodium selenite produced definite toxic symptoms similar to those observed in animals fed selenium-containing "toxic wheat." There was a distinct retardation of growth and an accompanying decrease in food intake. The latter effect was not due to an unpalatability of the diet, since a similar decrease in appetite was observed in animals injected with the salt. Pronounced alterations were observed also in the composition of the blood. After a preliminary rise in the concentration of hemoglobin, apparently resulting from an anhydremia, an anemia of progressively increasing severity developed. The erythrocytes of the anemic animals frequently showed achromia and later anisocytosis with polychromatophilic macrocytes. In acute cases there was a tendency toward leukopenia. Gross pathologic examinations at necropsy revealed evidence of extensive liver damage both in the animals which succumbed with acute toxic symptoms and in those which survived for a long time. The liver had a characteristic hobnailed appearance, resulting from local tissue necrosis followed by regeneration. A transudate was frequently present in the thorax or abdomen or both in those animals which died from the acute toxic effects of selenium. Similar evidence of pathologic changes in the liver has been obtained by another investigator,[3] who noted also a frequent hypertrophy of the heart and spleen and an atrophy of the testes and uterus.

OPTOMETRISTS AND OPHTHALMOLOGISTS

The place of the optometrist in medical technic is, as every one knows, not yet fully established. From trends over the last quarter century it would seem that eventually optometry will become a technical specialty in medicine somewhat like that of those skilled in developing braces or crutches for other portions of the body. Optometry must be essentially a method of measurement of deficiency in muscular action or in construction of the eye with the adaptation of a crutch for the eye—the only thing that an eyeglass can really be. Never-

1. The Selenium Problem, editorial, J. A. M. A. **104**: 50 (Jan. 5) 1935.

2. Franke, K. W., and Potter, V. R.: A New Toxicant Occurring Naturally in Certain Samples of Plant Foodstuffs: IX. Toxic Effects of Orally Ingested Selenium, J. Nutrition **10**: 213 (Aug.) 1935.

3. Schneider, H. A.: Selenium in Nutrition, Science **83**: 32 (Jan. 10) 1936.

theless it is well established that optometrists, like other technicians who have entered the field of medical practice, endeavor when once in the field to broaden out the scope of their activities and soon find themselves encroaching on the practice of medicine. The moment a person insufficiently trained expands beyond his limitations, he becomes a menace to those of the sick whom he attempts to treat. THE JOURNAL is moved to these comments by the observation of some literature recently developed by the Public Relations Committee of the Illinois State Society of Optometrists. The folders issued by this group are insidiously phrased to cause the public to believe that the optometrist is qualified far above physicians generally for the care of the eyes. Moreover, they attack the use of drugs for dilation of the pupil as a practice which is dangerous and unnecessary. The circular states falsely that optometrists are trained to recognize eye diseases. One finds, incidentally, that they are trained also in biology, psychology, sociology, economics and ethics. An observation of the circular would indicate that their training in at least one of these fields has been somewhat deficient. In general, ophthalmologists have not been greatly distressed by the work of the optometrist, since in many large communities there are optometrists who endeavor to practice their technical specialty with due regard for their limitations. If, however, the official organization of optometrists endeavors not only to expand the services beyond the limitation of optometric training but also, by insidious propaganda, to induce the public to have a false confidence in their qualifications, a situation must develop in which organized medicine will have to take definite action.

Association News

RADIO BROADCASTS

The American Medical Association broadcasts over WEAF, the Red network instead of the Blue, as formerly, and certain additional stations of the National Broadcasting Company at 5 p. m. eastern standard time (4 o'clock central standard time, 3 o'clock mountain time, 2 o'clock Pacific time) each Tuesday, presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met." The title of the program is "Your Health." The program is recognizable by a musical salutation through which the voice of the announcer offers the toast "Ladies and gentlemen, your health!" The theme of the program is repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night, for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast.

Red Network.—The stations on the Red network of the National Broadcasting Company are WEAF, WEEI, WTIC, WJAR, WTAG, WCSH, KYW, WFBR, WRC, WGY, WBEN, WCAE, WTAM, WWJ, WMAQ, KSD, WHO, WOW, WDAF.

Pacific Network.—The stations on the Pacific network are KGO, KPO, KFI, KGW, KOMO, KHQ, KFSD, KTAR.

Network programs are broadcast locally or rejected at the discretion of the local station. The lists indicate stations to which programs are available.

The next three programs are as follows:

March 17. Eyesight Saving, W. W. Bauer, M.D.
March 24. Hay Fever and Asthma, Morris Fishbein, M.D.
March 31. Let Your Doctor Decide, W. W. Bauer, M.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Bill Introduced.—H. 221-X proposes to require the payment annually to the board of health of Mobile County, out of the general county fund, of such money as is reasonably necessary for the maintenance and operation of a county health department, not less than 15 cents per capita.

CALIFORNIA

Medical Board Reappointed.—The following members of the California Board of Medical Examiners have been reappointed: Drs. Harry V. Brown, Glendale; William R. Molony, Los Angeles; Fred R. DeLappe, Modesto, and Charles B. Pinkham, San Francisco. Dr. Frederick W. Didier, Wheatland, has been appointed to succeed the late Dr. Percy T. Phillips, Santa Cruz.

Society News.—The San Francisco County Medical Society was addressed March 10 by Drs. Robert R. Newell and Eric Liljencrantz on "Usefulness of Roentgen Therapy in Inflammatory Processes" and "Carcinoma of the Breast—Rationale of Treatment" respectively.——At a meeting of the Los Angeles Society of Neurology and Psychiatry, March 18, Drs. Walter F. Schaller, San Francisco, will discuss "The Nature of Petechial Hemorrhages in Traumatized Brains" and Eberle Kost Shelton, Santa Barbara, "The Psychologic Aspects of Physiologic Imbalance."——A symposium on appendicitis was presented before the surgical section of the Los Angeles County Medical Association March 13 by Drs. Fred R. Fairchild, Woodland, John W. Budd Jr., Clarence G. Toland, Charles E. Phillips, Los Angeles, and Arthur Dean Bevan, Chicago.

COLORADO

Society News.—At a meeting of the Larimer County Medical Society in Loveland, February 5, Drs. James B. Walton, Denver, discussed problems of the new-born, and Gerrit Heusinkveld, Denver, obstetrics.——The Northeast Colorado County Medical Society was addressed in Sterling, February 13, by Drs. Chesmore Eastlake on "Differential Diagnosis of Influenza," and Philip Work, "What the Patient Calls Nervousness." Both are from Denver.——Dr. Royal C. Adkinson, Florence, discussed hyperinsulinism before the Fremont County Medical Society in Canon City, January 27.——Dr. Edwin D. Burkhard read a paper entitled "A Medical Survey of 1935" before the Pueblo County Medical Society, January 21.

Cragmor Sanatorium Reorganized.—Cragmor Sanatorium, at the foot of Austin bluffs northeast of Colorado Springs, has been incorporated under the laws of the state as a "nonprofit, nonsectarian organization created for benevolent, charitable and humanitarian purposes and for the treatment of tuberculosis and other ailments," as well as for research work. A board of directors of five members and an advisory board of trustees will govern the new association, through the ratification of an agreement between the old company, the bondholders' committee and certain individuals. The sanatorium was founded in 1906 by Dr. Edwin S. Solly with accommodations for twenty-five patients. Situated on 240 acres of land, the sanatorium now has a bed capacity of 130. The entire institution, valued at about $500,000, is made up of a main building accommodating fifty-two patients, a two story building for twenty patients, a home building with twenty-two beds, a women's cottage of eight beds, a men's cottage of eight beds, nine cabins, and one other small unit of eight beds. Adjoining the sanatorium is Cragmor Village, consisting of twenty-seven cottages, five of which are owned by the sanatorium and the others by persons who have been permitted to erect their own cottages on the sanatorium grounds. In addition there is a large four story cement building, which was formerly used as a nurses' home. Dr. Alexius M. Forster has been physician-in-chief at the institution since 1910.

DELAWARE

Society News.—Dr. Jesse O. Arnold, Philadelphia, presented a paper before the New Castle County Medical Society in Wilmington, January 21, entitled "Revising the Code of Prenatal Care." Dr. John T. King, Baltimore, addressed the society, February 18.

DISTRICT OF COLUMBIA

Medical Bill in Congress.—S. 4166, introduced by Senator Bulow, South Dakota, provides that the compensation of interns and student nurses who are subject to the Classification Act of 1923, serving in government hospitals located in the District of Columbia, may be fixed by the Civil Service Commission without regard to the compensation schedules contained in the Classification Act.

Protest Curtailment of Health Budget.—At a public meeting in Washington, called by the Medical Society of the District of Columbia, February 16, resolutions were adopted protesting the curtailment of the budget for health work in the district for the fiscal year 1936-1937. In a statement read by Dr. Prentiss Willson, chairman of the committee on program and resolutions, it was pointed out that the per capita expenditure for public health is far below standard; that the health department lacks adequate space, personnel and equipment to carry on its work efficiently; that provisions for the care of venereal disease at the municipal clinics are hopelessly inadequate and that too few nurses are employed at Gallinger Municipal Hospital and the Children's Tuberculosis Sanatorium at Glenn Dale, Md. Members of the Medical Society of the District of Columbia and representatives of other health agencies and lay organizations attended the meeting. Speakers included Rabbi Abram Simon, who presided; Dr. Sterling Ruffin, president of the medical society; Dr. Herbert P. Ramsey, Dr. Harry Stoll Mustard, Baltimore, and Rev. John O'Grady, director of Catholic Charities for the district. Representative Thomas L. Blanton of Texas, chairman of the House subcommittee on district appropriations, was present.

FLORIDA

Society News.—At a meeting of the Tri-County Medical Society (DeSoto-Hardee-Highlands) in Sebring, February 11, Drs. Joe M. Bosworth, Lakeland, discussed "The Use of the McBurney Incision," and Hartley E. Boorom, Sebring, "Narcolepsy."——Dr. Harry A. Peyton, Jacksonville, read a paper on "Cancer of the Small Intestine" before the Duval County Medical Society in Jacksonville, February 4.——At a meeting of the Leon-Gadsden-Liberty-Wakulla-Jefferson County Medical Society in Quincy, January 16, speakers included Drs. Harry B. McEuen, Jacksonville, treatment of an extensive carcinoma with lantern slide and color motion picture demonstration of the results; William W. Massey, Quincy, a review of the modern treatment of burns; Courtland D. Whitaker, Marianna, acute coronary thrombosis, and Ralph M. Clements, Chattahoochee, conditions affecting the eye, ear, nose and throat.——Dr. George R. Creekmore, Brooksville, read a paper before the Pasco-Hernando-Citrus County Medical Society at its meeting in Brooksville, January 9, entitled "Thigh Amputations."

ILLINOIS

Society News.—Mr. Harold Baker, East St. Louis, discussed "The Harrison Narcotic Act" before the St. Clair County Medical Society in East St. Louis, March 5; speakers at the March 4 meeting in Belleville included Drs. Robert S. Berghoff and Clayton J. Lundy, Chicago, on "Diagnosis and Treatment of Heart Disease" and "Electrocardiogram in Early Diagnosis of Arteriosclerotic Heart Disease" respectively.——At a meeting of the LaSalle County Medical Society in La Salle, February 26, speakers were Drs. Edward A. Roling, Chicago, on "Eye Conditions of Interest to the General Practitioner"; Tell Nelson, Chicago, "Diagnosis of Allergic Conditions," and Edward G. Tatge, Evanston, "Allergy in General Practice."——Dr. Chauncey C. Maher, Chicago, discussed "Hypertensive Vascular Disease" before the Adams County Medical Society in Quincy, March 9.

Chicago

Ranson Lecture.—Dr. Hugh Cabot, Rochester, Minn., delivered the eighth annual Stephen Walter Ranson Lecture at Northwestern University School of Medicine, February 25, on "The Changing Practice of Medicine."

Increase in Heart Disease.—In 1935 there were 10,085 deaths attributed to heart disease, as compared with 9,654 in 1934. These totals, based on statistics reported by the Chicago Heart Association, compare with 35,424 deaths from all causes in 1935 and 36,282 in 1934.

Hospital News.—Cook County Hospital cared for 69,891 patients during 1935; although the normal daily capacity of the hospital is 2,600, a daily average of 2,619 was maintained by placing beds in hallways and opening two new floors in the children's ward which provided 190 additional beds. The number of persons who died in the hospital was 6,650. There were 82,721 patients turned away from the hospital; of these 25,284 received first aid treatment.

Society News.—Dr. Anton J. Carlson gave an address at a meeting of the Cook County League of Women Voters in the Palmer House, March 14, entitled "Buyers Beware! The New Food and Drug Act: A Test in Consumer Effectiveness."——Speakers before the Chicago Gynecological Society, March 20, will include, among others, Drs. George H. Rezek on "A Biological Test for the Diagnosis of Intra-Uterine Fetal Death" and Harold H. Hill, Oak Park, "Value of the Sturmdorff Cone for Biopsy Material in the Detection of Early Carcinoma of the Cervix Uteri."

Hospital Council Formed.—The Chicago Hospital Council was recently organized to work out a program of group hospital insurance, newspapers report. Hospitals that have joined the council are Augustana, Berwyn, Garfield Park, Community, Bethany, Grant, Henrotin, Holy Cross, Home for Destitute Crippled Children, St. Anthony de Padua, Little Company of Mary, Lutheran Deaconess, Michael Reese, Mount Sinai, St. Bernard's, St. Joseph, St. Luke's, University of Chicago Clinics, including Billings Memorial, Bobs Roberts Memorial and the Max Epstein clinics; Women's and Children's Hospital, and Woodlawn.

Survey of Visual Conditions.—A survey of visual conditions in public schools in Chicago is under way, under the auspices of the board of education, as a project of the works progress administration. The eyesight of all children will be tested. The Illinois Society for the Prevention of Blindness is supervising the making of the tests. Children whose vision falls below 20/70 will be required to have an examination by an ophthalmologist. Members of the Chicago Ophthalmological Society who will assist in making the examinations are requested to consider this work as a partial charity since it is primarily for the underprivileged. Rates have been fixed for patients able to pay a fee, and free choice of physician is urged.

INDIANA

Fifty Years of Practice.—Dr. Walter N. Thompson, Sullivan, was guest of honor at a banquet given by the Sullivan County Medical Society, February 14, to observe his completion of fifty years in the practice of medicine, all in Sullivan. Dr. Jacob T. Oliphant, Farmersburg, was master of ceremonies, and speakers included Drs. James B. Maple, Sullivan, Arthur F. Weyerbacher and Willis D. Gatch, Indianapolis. Dr. Joseph R. Crowder presented Dr. Thompson with a picture of the county medical society and a gold wrist watch engraved with the following: "Presented to Dr. Walter N. Thompson by the Sullivan County Medical Society in honor of fifty years of service, February 16, 1936." Dr. Thompson's father, Dr. J. J. Thompson, practiced fifty years and six months in Sullivan.

Society News.—Dr. Willis D. Gatch, Indianapolis, discussed cancer before the Muncie Academy of Medicine, February 11.——At a meeting of the Hamilton County Medical Society in Cicero, February 11, Dr. Marlow W. Manion, Indianapolis, spoke on "Laryngeal Obstruction."——The Putnam County Medical Society was addressed in Greencastle, February 11, by Dr. James O. Ritchey, Indianapolis, on "Nontuberculous Chest Infections."——At a meeting of the Parke-Vermillion County Medical Society in Clinton, February 19, Dr. George S. Bond, Indianapolis, discussed "Diseases of the Coronary Arteries."——Dr. Harold D. Lynch, Evansville, spoke on communicable diseases before the Knox County Medical Society in Vincennes, February 11.——Dr. Fred Bierly Jr., Elizabeth, discussed high and low blood pressure before the Floyd County Medical Society in New Albany, February 14.——The Tippecanoe County Medical Society was addressed in Lafayette, March 10, by Dr. Delbert O. Kearby, Indianapolis, on "Bronchoscopy: Better Diagnosis and Treatment of Bronchial Disturbances."——Dr. Mason B. Light read a paper on "Endoscopy in the Diagnosis and Treatment of the Food and Air Passages" before the Indianapolis Medical Society, February 25.

KANSAS

Course in Neuropsychiatry.—A graduate course on neuropsychiatry in general practice will be held at the Menninger Clinic, Topeka, April 20-25. The course will be directed to the application of modern neuropsychiatric principles to cases which the general practitioner frequently sees in this field. Enrolment in the course is limited to thirty. In addition to members of the Menninger Clinic, guest lecturers will be Drs. Israel S. Wechsler, New York, and James W. Kernohan, Rochester, Minn.

MASSACHUSETTS

Personal.—Dr. William B. Keeler, newly appointed health commissioner of Boston, was guest of honor at a dinner at the Myles Standish Hotel, January 29. Dr. Charles F. Wilinsky acted as host and toastmaster.——A farewell dinner was given to Dr. Karl M. Bowman, formerly chief medical officer of the Boston Psychopathic Hospital, January 30, by about 100 friends and associates. Dr. Bowman has been named director of the psychiatric division of Bellevue Hospital, New York.

MICHIGAN

Koch Loses Malpractice Suit.—A verdict for $5,500 was returned by a jury in the circuit court of Wayne County, January 24, in a malpractice suit instituted against William F. Koch, director of the Koch Cancer Foundation, by Alfred A. Fortner, a former patient. This case was a retrial of a former proceeding in which a verdict was rendered against Koch for $25,000, reduced by the trial court to $7,000. The supreme court of Michigan, on an appeal by Koch, reversed the judgment for certain errors committed by the trial court and ordered a new trial (THE JOURNAL, February 22, p. 651). According to the newspapers, Fortner alleged that Koch charged him $300 each for injections of a cancer serum when he was not suffering from cancer. He claims to have gone to Koch believing he had cancer and was treated with the serum from June to September 1931, after which Koch advised him to discontinue the treatment and go to a hospital. Fortner then discovered he had another disease. The complaint charged Koch with negligence. Koch graduated from the Detroit College of Medicine and Surgery in 1918. Less than a year after his graduation in medicine, he announced that he had developed a cure for cancer. In 1921 he was dropped from membership in the Wayne County Medical Society for exploiting a so-called cancer cure (THE JOURNAL, May 8, 1926, p. 1469; July 14, 1934, p. 116).

MINNESOTA

Society News.—Speakers before the Hennepin County Medical Society March 11 were Drs. Herbert A. Burns, Ah-Gwah-Ching, on "Indian Medicine" and Arthur C. Kerkhof, Minneapolis, "The Gastroscope."——At a meeting of the Minnesota Academy of Medicine, March 11, speakers were Drs. Louis A. Buie, Rochester, on "Ancient and Modern Knowledge Concerning Anal Fistula" and Charles B. Wright, Minneapolis, "Multiple Myeloma and Its Differential Diagnosis."

Minneapolis Children Free from Malnutrition.—There is practically no malnutrition evident among children in the Minneapolis public schools, according to Dr. Francis E. Harrington, director of hygiene. A general observation survey of the school children was made during the period from September to the Christmas holidays to determine as nearly as possible their nutritional status. There are occasional cases of undernourishment but the percentage in the school system is less than was found five years ago. The children appear, as a rule, to be having better home care. These facts are supported by reports from physicians throughout the city, child agencies and the children's wards at the Minneapolis General Hospital. In all instances, it was stated, malnutrition has apparently decreased.

MISSISSIPPI

Bill Passed.—H. 289 has passed the house, proposing to enact what appears to be the uniform narcotic drug act for the regulation of the manufacture, sale, possession, prescribing, administering, dispensing, compounding and cultivating of narcotic drugs. The bill defines narcotic drugs as meaning coca leaves, opium, cannabis and every substance neither chemically nor physically distinguishable from them.

Bills Introduced.—H. 540 proposes to regulate the practice of chiropody or podiatry and to authorize the state board of medical examiners to examine and license applicants for such licenses. The bill defines chiropody or podiatry as "the diagnosis and medical, mechanical, electrical, and surgical treatment of the minor ailments of the human foot, such as corns, callouses, warts, ingrowing and abnormal nails, bunions, and similar conditions." Licentiates are to be allowed to use such mechanical appliances as may be deemed necessary for the relief or cure of ailments of the feet. Amputation of the foot or of toes and the use of anesthetics other than local are apparently prohibited, but the language of the bill in this connection is obscure. Diseases and conditions of the feet produced by kidney, heart or other systemic diseases are not to be treated by a chiropodist or podiatrist, except under the direction of a regularly licensed physician. H. 422, to amend the dental practice act, proposes to authorize the revocation of the license of any licentiate advertising professional superiority or the performance of professional service in a superior manner; advertising prices for professional service; advertising by means of large display, glaring light sign or containing as a part thereof the representation of a tooth, teeth, bridge work or any portion of the human head, or employing advertising solicitors or free publicity press agents; advertising any free dental work or free examination; advertising to guarantee any dental service or to perform any dental operation painlessly; or advertising any commercial dental laboratory or clinic, either pay or free, when it is operated in connection with the practice of a licensed dentist or dental hygienist.

MISSOURI

Society Memberships Presented to Interns.—At a recent meeting the staff of the DePaul Hospital, St. Louis, presented a junior membership in the St. Louis Medical Society to each intern connected with the hospital. The *Journal of the Missouri Medical Association* compliments the hospital staff for this action.

NEW JERSEY

Society News.—Dr. Oliver Spurgeon English, Philadelphia, addressed the Burlington County Medical Society, Moorestown, January 9, on management of the neurotic patient.——Dr. Joseph C. Doane, Philadelphia, addressed the Cape May County Medical Society, January 14, on "The Autonomic Nervous System in General Practice."——Dr. Walter E. Dandy, Baltimore, addressed the Academy of Medicine of Northern New Jersey, Newark, February 20, on "Treatment of Injuries of the Head."——At a meeting of the Monmouth County Medical Society, January 6, Dr. William P. Thompson, New York, spoke on splenomegaly.——Dr. Philip F. Williams, Philadelphia, addressed the Essex County Medical Society, March 12, on "Intrapartum Care in Its Relation to Maternal Welfare."

NEW YORK

Dr. Cheney Appointed in Charge of Bloomingdale Hospital.—Dr. Clarence O. Cheney, director of the New York Psychiatric Institute and Hospital at the Columbia University Medical Center, has been appointed superintendent and director of the Bloomingdale Hospital, White Plains, succeeding the late Dr. Mortimer W. Raynor. For five years prior to his appointment at the New York Psychiatric Institute and Hospital in 1931, Dr. Cheney had been director of the Hudson River State Hospital, Poughkeepsie. He was secretary of the American Psychiatric Association from 1928 to 1933 and is now president of the organization. When the association established a certification board in 1933, Dr. Cheney was named its first chairman. He will continue in his present position until the end of the present fiscal year, June 30.

Bills Introduced.—S. 1259, to amend the public welfare law in relation to the manner of providing medical care to indigents, proposes to require the appropriate public welfare official to provide medical care for the indigent sick in their homes and to permit the patient to be attended by his family physician or other physician of his own choice. S. 1341 proposes to prohibit any person who conducts a retail store for the sale of footwear and who accepts orders for footwear to fit abnormal feet from accepting such orders except on the prescription of registered podiatrists. S. 1389, to amend the medical practice act, proposes to authorize the revocation of the license of a physician who (1) has employed, hired, procured or induced an unlicensed person to practice medicine; (2) who has aided or abetted in the practice of medicine a person who is not licensed so to practice, or (3) who has advertised for patronage, by means of handbills, posters, circulars, stereopticon slides, motion pictures, radio, newspapers or magazines. S. 1393 proposes to require the board of regents of the University of the State of New York, prior to Jan. 1, 1937, to establish and appoint a state board of chiropractic examiners. This board, after its organization, would establish rules and regulations fixing the qualifications of applicants for licenses to practice chiropractic, the examination of such applicants, and the granting and issuing of licenses to practice chiropractic. The bill proposes to define chiropractic, in effect, as the adjustment of the human skeletal frame according to the doctrine of chiropractic. Such practice is not to include the performance of surgical operations with the use of instruments or the prescribing or use of drugs or medicines, but x-rays may be used for the purpose of examination. S. 1404 and A. 1690, to amend the narcotic drug act, proposes to define "wholesaler" as "a

person who supplies others than consumers with narcotic drugs or preparations containing narcotic drugs that he himself has not produced or prepared." S. 1416 proposes to require every physician attending any person whom he believes suffering from poisoning by lead, phosphorus, arsenic, brass, wood alcohol, mercury or other compounds, or from anthrax, or compressed air illness, or from any occupational disease, contracted as the result of the nature of such person's employment, to report the facts to the industrial commissioner. A. 1510, to amend the medical practice act, proposes to require applicants for licenses to practice medicine to be citizens of the United States. The present law merely requires an applicant to have declared his intention of becoming a citizen. A. 1511, to amend the medical practice act, proposes that "notwithstanding the provisions of the act or of any other general or special law, no license or certificate, wherever issued, shall be endorsed without examination as a license to practice medicine in New York unless the holder thereof shall have graduated from a medical school or college registered as maintaining at the time a standard satisfactory to the [education] department." A. 1683 proposes to prohibit the sale or possession with intent to sell, of any inaccurate clinical thermometer, defined as "every thermometer intended for taking the temperature of human beings and animals." A clinical thermometer is to be deemed to be inaccurate: (*a*) if, when tested with a standard clinical thermometer, the mercury fails to register within plus or minus two tenths of a degree Fahrenheit; (*b*) if the mercury column, by reason of its own weight, or for any reason other than through the application of force, retreats in the tube at any point in the scale; (*c*) if the scale fails to show accurately, clearly and legibly, graduation lines and numbers from 96 to 106 degrees Fahrenheit, or (*d*) if the maker's name or trademark is not clearly and legibly engraved thereon, or where the trademark appears thereon, such trademark has not been filed with the department of health.

New York City

Sixth Harvey Lecture.—Dr. Richard E. Shope of the Department of Animal and Plant Pathology, Rockefeller Institute for Medical Research, Princeton, N. J., will deliver the sixth Harvey Lecture at the New York Academy of Medicine, March 19. His subject will be "Influenzas of Swine and Men." The seventh lecture will be given by Dr. Warren H. Lewis, Baltimore, professor of physiologic anatomy and research associate, Carnegie Institution of Washington, April 16, on "Malignant Cells."

Blizzard Class Reunion.—The forty-eighth reunion of the so-called Blizzard Class, which graduated from Bellevue Hospital Medical College on the night of the famous blizzard of March 12, 1888, was held at Cavanagh's Restaurant, March 12. Of 144 members of the class, twenty-five who responded to the invitation seemed to be still in practice, it was reported. According to *New York Medical Week*, the "Blizzard Men of 1888," an organization of professional and business men, was to meet at a luncheon at the Hotel Pennsylvania for a reunion on the anniversary date. The *New England Journal of Medicine* announces that Dr. Samuel M. Strong, 4233 Kissena Boulevard, Flushing, is interested in compiling experiences of the famous storm and hopes that physicians will send their accounts to him.

NORTH CAROLINA

Report of the Duke Endowment.—The tenth annual report of the hospital section of the Duke Endowment reveals that $5,828,048 has been given to 141 hospitals in North and South Carolina for free bed days in the last ten years; assistance was given to 51 per cent of the 908,099 inpatients treated in these institutions. The endowment contributed 30 per cent of the cost of free service in these hospitals and provided the equivalent of the total cost of free service for 480 patients daily since aid in this field was begun. During the ten years it paid at the actual average cost of $39.40 per patient, the full cost of treatment of 147,880 patients, and built and equipped sixty-two hospitals in the Carolinas at a cost of $2,371,791.72. Contributions from the Duke Endowment to the Carolina hospitals constituted 33.6 per cent of the contributions from all sources for the ten year period. The average daily per capita cost over the period was for all hospitals, $3.56; hospitals for white patients, $4.16; hospitals caring for both races, $3.57; hospitals for Negroes, $1.90. The report points out that privately operated hospitals in the Carolinas decreased from ninety-three to forty-five in the ten year period, while nonprofit or public hospitals increased from forty-seven to 112. In 1924, 51.2 per cent of all general hospital beds were privately operated and in 1934 only 16.7 per cent were on this basis.

OHIO

Founders' Day at State University.—The annual Founders' Day program of the Ohio State University College of Medicine, Columbus, was held March 6-7. Clinics at St. Francis and University hospitals occupied the first morning. In the afternoon there was a symposium on virus diseases presented by Dr. Noel Paul Hudson, F. S. Markham, W. A. Starin, Ph.D., J. M. Birkeland and Dr. Oram C. Woolpert. In the evening Dr. Carl V. Weller, professor of pathology, University of Michigan Medical School, Ann Arbor, delivered the Alpha Omega Alpha lecture, on "Anthony van Leeuwenhoek and His Microscopes." Saturday morning addresses were made by Drs. Russell L. Haden, Cleveland, on "Mechanisms of Anemia"; Gatewood, Chicago, "History of Surgery," and Martin H. Fischer, Cincinnati, "Diabetes."

PENNSYLVANIA

Society News.—Dr. Dean D. Lewis, Baltimore, addressed the Erie County Medical Society, Erie, February 11, on "Endothelial Tumors."——Dr. William H. Guy, Pittsburgh, conducted a clinic for the Fayette County Medical Society, Uniontown, March 12, on diagnosis and treatment of skin diseases.——A symposium on the eye, ear, nose and throat was presented at a meeting of the Dauphin County Medical Society, Harrisburg, February 4; participants were Drs. Jay D. Smith, George H. Seaks, Harold F. Lanshe and Byron B. Bobb.——Dr. William L. Mullins, Pittsburgh, addressed the Harrisburg Academy of Medicine, February 18, on coronary occlusion.

Philadelphia

Changes at Temple University.—The departments of neurology and neurosurgery at Temple University School of Medicine have been combined with Dr. Temple Fay, professor of neurosurgery, as head of the department, and Dr. James W. McConnell, associate professor of neurology, Graduate School of Medicine of the University of Pennsylvania, as professor of neurology. The department of pathology has been completely reorganized under the direction of Dr. Lawrence Weld Smith. Promotions include that of Dr. Edward Weiss from clinical professor to professor of clinical medicine.

Pittsburgh

Society News.—Speakers at a meeting of the Allegheny County Medical Society, February 18, were Drs. J. West Mitchell, on "Vascular Diseases of the Extremities"; John P. Henry, "Injection Treatment of Varicose Veins," and S. Benjamin Meyers, Johnstown, "Frigidity—A Problem in General Practice."——Dr. Otto H. Schwarz, St. Louis, addressed the Pittsburgh Society for Biological Research, February 20, on "Puerperal Infection."——Speakers at the meeting of the Pittsburgh Academy of Medicine, February 25, were Drs. Samuel R. Haythorn, on "The Present Status of Pneumoconiosis," and Harold A. Kipp, "Factors Influencing the Variations in Pressure in the Biliary Tract."

TEXAS

Society News.—Drs. Emmett O. Rushing and Calvin R. Hannah addressed the Dallas County Medical Society, February 13, on "Everyday Clinical Points in Classifying the Three Types of Goiter" and "Prevention and Treatment of Puerperal Infection" respectively.——Dr. John L. Burgess, Waco, addressed the Bosque County Medical Society, Clifton, January 16, on otolaryngology for the general practitioner.——Drs. Khleber H. Beall and Samuel Jagoda, Fort Worth, addressed the Cooke County Medical Society, Gainesville, January 14, on "Coronary Occlusion" and "The Electrocardiograph as a Diagnostic Aid" respectively.——Dr. Henry M. Winans, Dallas, discussed "Recent Contributions to the Knowledge of Heart Disease" as guest of the Navarro County Medical Society, January 6.

VIRGINIA

Bill Passed.—S. 289 has passed the senate and the house proposing to prohibit the possession, sale, use, distribution or production of "cannabis." Nothing in the bill, however, is to be construed as applying to licensed growers, licensed manufacturers of drugs and medicinal supplies, hospitals, registered wholesale and retail pharmacists or to licensed physicians, dentists and veterinarians.

Health at Richmond.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended February 29, indicate that the highest mortality rate (24.7) appeared for Richmond and that the rate for the group of cities was 14.8. The

rate for Richmond for the corresponding week of 1935 was 16.8 and for the group of cities, 13.2. The annual rate for the eighty-six cities for the nine weeks of 1936 was 13.7 as compared with 13 for the corresponding period of 1935. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that a city is a hospital center for a large area or that it has a large Negro population may tend to increase the death rate.

PHILIPPINE ISLANDS

Medical Society Election. — Officers of the Philippine Islands Medical Association elected at the annual meeting are Drs. Rufino Abriol, Manila, president; Ramon F. Campos, Iloilo, and Januario R. Estrada, Manila, vice presidents, and Antonio S. Fernando, Manila, secretary.

PUERTO RICO

Society News.—At a meeting of the Puerto Rico chapter of the Pan American Medical Association recently Dr. Isaac F. Gonzalez Martinez was elected president; Dr. José Rodriguez Pastor, vice president, and Dr. Rafael Rodriguez Molina, secretary, reelected. All are from San Juan.

GENERAL

Journal for Interns. — The first issue of the *American Interne* appeared in January. It is a twenty-eight page magazine edited by Harold Salkind and published independently in New York. The first issue contained short scientific articles, editorials, book reviews and an open forum.

Tri-State Meeting.—Dr. Douglas Jennings, Bennettsville, S. C., was elected president of the Tri-State Medical Association of the Carolinas and Virginia at its annual meeting in Columbia, S. C., February 17-18. The 1937 meeting will be held in Norfolk, Va. Guest speakers included Drs. Edward J. G. Beardsley, Philadelphia, on "What Life Teaches the Doctor" and "Common Sense in Cardiac Diagnosis" and Page O. Northington, New York, "Upper Respiratory Infections."

Educational Films to Be Listed.—The U. S. Office of Education and the American Council on Education are making a survey to list all motion pictures that have an educational value. The survey is part of the council's work toward establishment of a national educational film institute to develop use of the motion picture and other allied visual-auditory aids in all fields of learning. Any person or organization that has produced, now owns or has the exclusive distribution rights to any motion picture that should be included in the catalogue is asked to send for film catalogue cards from the American Council on Education, 744 Jackson Place, Washington, D. C.

Southern Assembly.—Dr. Robert M. Adams, Ripley, Miss., was chosen president elect of the Mid-South Post Graduate Medical Assembly at the fifty-second annual session in Memphis, Tenn., February 11-14. Dr. Carl R. Crutchfield, Nashville, was installed as president. Among guest speakers were:

Dr. Conrad Berens, New York, External and Ophthalmoscopic Examination of the Eye with Reference to Treatment of Underlying Diseases.
Dr. Claude S. Beck, Cleveland, The Heart as a Surgical Organ.
Dr. Frank H. Lahey, Boston, Indications for Surgery and Surgical Management of Gastric Lesions.
Dr. Richard H. Jaffe, Chicago, Differential Diagnosis of Leukemia.
Dr. Henry Norman Bethune, Montreal, Surgery of the Chest.
Dr. Eugene M. Landis, Philadelphia, Diagnosis and Treatment of Peripheral Vascular Disease.
Dr. Emil Novak, Baltimore, Endocrinology of the Female Reproductive Cycle.

News of Epidemics.—About 110 cases of meningitis with thirty deaths in Harlan County, Ky., led health officers to close theaters and restrict public gatherings throughout the county, newspapers reported March 7.——Schools, theaters and other places of public assembly were closed in Bowie County, Texas, where nine deaths from meningitis have recently occurred, it was reported February 27; at the same time an epidemic of influenza caused most of the schools in Jefferson County, Texas, including those in Port Arthur, to be closed.——Schools and theaters at Richlands, W. Va., and vicinity were placed under quarantine, February 3, when six cases of meningitis were reported.——Four cases of meningitis with one death were reported from small towns near Allentown, Pa., February 10. ——Two cases of meningitis were reported aboard the navy training ship *California State*, February 10.——Sixty-two cases of scarlet fever among inmates and employees of the Rockland State Hospital, Orangeburg, N. Y., were reported February 16.——Epidemics of mumps affecting 200 school children in Greensburg, Pa., and sixty in a grade school in Lebanon County, Pa., were reported in February.

Medical Bills in Congress.—*Changes in Status:* S. 2625 has been reported to the House, proposing to extend the facilities of the United States Public Health Service to seamen on government vessels not in the military or naval establishments. H. R. 3629 has been reported to the House, proposing to authorize the acquisition of additional land for the use of the Walter Reed General Hospital. H. R. 5764 has been reported to the Senate, proposing to compensate Dr. Augustus J. O'Brien and the Grand View Hospital, Ironwood, Mich., for services rendered in connection with the treatment of persons injured by federal agents during the Dillinger raid on the Little Bohemia Lodge, Manitowish, Wisconsin. H. R. 10630, making appropriations for the Department of the Interior for the fiscal year ending June 30, 1937, has passed the House and Senate. As passed by the House, the bill authorized the Bureau of Mines to sell helium to hospitals and members of the medical profession for the treatment of disease, subject to the approval of the United States Public Health Service. The Senate struck this authorization from the bill. *Bills Introduced:* S. Con. Res. 34, introduced by Senator Murray, Montana, proposes to create a joint congressional committee to make an investigation of the conditions in the metal miners' occupation, with particular reference to silicosis and tuberculosis. H. Res. 429, introduced by Representative Connery, Massachusetts, proposes to authorize the Committee on Labor, as a whole or by a subcommittee, to investigate the health conditions of workers employed in the construction and maintenance of mining and tunneling projects, with particular reference to silicosis and other respiratory diseases. S. 4033, introduced by Senator Schwellenbach, Washington, proposes to amend the Longshoremen's and Harbor Workers' Compensation Act so as to provide that the medical and surgical care rendered under the act "shall include attendance and treatment by any physician or surgeon selected by the injured employee who resides in the same community with the injured employee and whose competency has been approved by the deputy commissioner, if the employee is not satisfied with the physician or surgeon selected by the employer." S. 4059, introduced by Senator Copeland, New York, proposes to provide medals of honor for civilian government employees for distinguished service. S. 4153, introduced by Senator Bone, Washington, proposes to provide hospitalization for certain employees in the Bureau of Navigation and Steamboat Inspection of the Department of Commerce and for licensed local pilots of the United States. S. 4181, introduced by Senator McAdoo, California, proposes to authorize an appropriation of $375,000 to construct a new wing on the veterans' hospital at Los Angeles. H. Res. 432, introduced by Representative Daly, Pennsylvania, proposes to request the Secretary of the Navy and the Administrator of Veterans' Affairs to submit a report respecting the Naval Hospital at Philadelphia, setting forth the facilities at the hospital, the extent of its use by veterans, its needs for additional facilities, and certain other relevant facts. H. J. Res. 496, introduced by Representative Randolph, West Virginia, proposes to erect a memorial to Dr. Samuel Alexander Mudd for his "heroic and invaluable medical aid to yellow fever victims." Dr. Mudd gave medical aid to the assassin of President Lincoln and was sentenced to life imprisonment at Fort Jefferson. Subsequently he received a complete and unconditional pardon. The services for which it is proposed to give recognition were rendered "to his fellow men while being held a prisoner for a crime which he did not commit." H. R. 11330, introduced by Representative Gassaway, Oklahoma, proposes to authorize the dissemination of information relating to the prevention of conception, and articles designed, adapted or intended for the prevention of conception, when sent, carried or conveyed (1) to licensed physicians for the treatment of patients, (2) to licensed druggists for the purpose of filling prescriptions, (3) to any legally chartered medical school for medical instruction at such school, or (4) to any legally licensed or chartered hospital or clinic for the treatment of patients in such hospital or clinic.

CANADA

Lawyer Appointed Minister of Pensions and Health.—Charles G. Power, Quebec, a lawyer and a member of Parliament at various times since 1917, has been appointed minister of pensions and national health for Canada. The new minister was born in Quebec and educated in law at Laval University. He received the Military Cross for distinguished service overseas during the World War.

Society News.—Drs. Walter M. Paton and Bede J. M. Harrison addressed the Vancouver Medical Association, January 7, on "Tumors of the Head and Neck" and "Roentgenology of Cardiac Diseases" respectively. Mr. J. W. deB. Farris

discussed medicolegal problems before the association, February 4.——Dr. Alvah H. Gordon, Montreal, discussed "Bone Changes in Certain Medical Diseases" before the Academy of Medicine of Toronto, February 4.

LATIN AMERICA

Society News.—The National Academy of Medicine of Mexico recently elected the following officers: Drs. Gustavo Baz, president; Ignacio González Guzmán, vice president; Alfonso Pruneda, permanent secretary; Mario Quiñones, annual secretary, and Manuel Mattínez Baez, treasurer.

FOREIGN

Course in Otolaryngology.—The Association of the Hospitals of Paris for Medical Instruction announces a week's course in otolaryngology to be given May 4-9, inclusive. Registrations for the course will be received up to April 15 by Dr. Louis Leroux, 242 bis Boulevard Saint Germain, Paris. Among the subjects listed are laryngoscopy, ocular nystagmus, total laryngectomy, diagnosis and treatment of cancer of the larynx, surgical treatment of ozena, petrositis, ethmoiditis, surgery of the labyrinth and osteomyelitis invading the brain.

Society News.—The German Society for Tropical Medicine will meet in Hamburg June 2-3. The official journal of the society changed its title January 1 to *Archiv für Schiffs- und Tropenhygiene.*——The fifteenth session of the "Medical Days" of Brussels will be held at the Free University of Brussels, June 20-24, under the presidency of Dr. Robert Danis. For information write Dr. R. Beckers, secretary general, 141 rue Belliard, Brussels.——The fourth International Congress of Pediatrics, which was scheduled for this spring in Rome, has been postponed until the latter part of September, according to the *Journal of Pediatrics.*

Congress of Jewish Physicians.—The first World Congress of Jewish Physicians is to be held in Jerusalem at the Hebrew University and Tel Aviv, April 21-24. The program includes reports on the situation of Jewish physicians; reports on medical education; hygienic conditions of the Jewish population in Palestine and other countries with large Jewish population, Jewish institutions for preventive medicine and sanitary service, foundation of a world union of Jewish physicians, and scientific lectures on anthropology and eugenics. For information concerning reduced rates and special facilities apply to Amalgamated Bank of New York, 1111 Union Square, New York.

Government Services

Course in Aviation Medicine

At a dinner meeting of the U. S. Naval Reserve Medical and Dental Officers' Association in New York, recently, the following medical reserve officers were awarded certificates for having successfully completed the course in aviation medicine in which they were enrolled: Lieut. Comdrs. William J. Fordrung, Manfred J. Gerstley, Max Gratz, Abraham Jablons, Walter R. Loewe and Oscar Wald and Lieut. Lawrence A. Gerlach. The course was conducted by the medical office of the headquarters commandant, third naval district, Navy Department, and was the first of its kind to be held in the United States for naval reserve officers.

Physiologist Wanted for Air Corps Laboratory

The U. S. Public Health Service announces an open competitive examination for the position of associate research physiologist to fill a vacancy in the Air Corps, Materiel Division, Wright Field, Dayton, Ohio. The duties will be to establish, equip and operate a physiologic and biochemical research laboratory to investigate all phases of the effects of flying on the human organism. Competitors will not be required to report for examination at any place but will be rated on their education and experience. They must be citizens of the United States, must have graduated from a college or university of recognized standing with not less than twenty semester hours in physiology, and must have had not less than three years' research experience in animal physiology and biochemistry. They must not have reached their forty-fifth birthday on the date of application and they must be in sound physical health. Applications must be filed with the U. S. Civil Service Commission, Washington, D. C., not later than March 30.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 1, 1936.

Precautions Against Anesthetic Explosions

The number of serious accidents due to anesthetic explosions in operating rooms has so far been small, but two main factors seem likely to increase them: (1) administration of ether and oxygen mixtures, which has become common; (2) the growing use of electrical apparatus close to the patient. A study of certain accidents in this country by the Ministry of Health has shown the need for precautionary measures, and after consultation with the factory department of the home office it has issued to local authorities and to health officers a memorandum, of which the following is a summary:

THE ANESTHETIC

A rich ether-oxygen mixture is more dangerous than a corresponding ether-air mixture, and a very small spark suffices for ignition. Nitrous oxide is not inflammable, but mixtures of ether vapor with air or oxygen are made more inflammable if nitrous oxide is added. Ethyl chloride yields a vapor that forms an explosive mixture with air and is dangerous in proximity to flames or apparatus likely to involve a spark and hot wires. The ordinary A. C. E. mixture may yield an explosive mixture with air and be dangerous under the conditions just mentioned. Explosions resulting from a mixture of ethylene and oxygen are very destructive.

The following methods of anesthesia are available when explosive risks may be anticipated: basal narcosis, local analgesia, nitrous oxide, chloroform. But chloroform is not always advisable, and local anesthesia may be impracticable. Then the risk of ether may be minimized by limiting its administration to the induction of anesthesia. After an interval sufficient for elimination of the ether vapor, electrical apparatus may be used, anesthesia being maintained with chloroform or nitrous oxide and oxygen. Risk of ether explosions may be lessened by using a rigid closed circuit with carbon dioxide absorption. With a tightly fitting mask, no anesthetic should then escape into the air.

ANESTHETIC APPARATUS

In some types of apparatus it is possible for an explosive mixture containing ether to be delivered, although the valve or tap is set to admit chloroform or nitrous oxide only. This is due to evaporation combined with the slight suction effect of the gas flow and is more likely if the ether bottle is surrounded by a hot water jacket. The casual emptying of the ether bottle is not only no safeguard but a possible danger. The ether bottle should be altogether detached and not replaced until all traces of ether have been removed, or it should be fitted with an effective valve which closes the outlet when ether vapor is not required. It has been established by experiment that ether-oxygen mixtures can ignite along a tube, such as that used in intratracheal administration, or in conjunction with a mask. If ignition occurs at the outlet, a flame may therefore reach the ether bottle, causing a burst with ejection of burning ether. Enclosed suction pumps should be so constructed that the exhaust delivery is outside the motor case. Otherwise in nose and throat operations the air-containing ether may be sucked in until concentration within the explosive limits is reached.

ELECTRICAL APPARATUS

It is unwise to use diathermic apparatus if ether must be administered, as the cutting arc or spark can ignite ether-air or ether-oxygen. A blanket or other screen between the patient's head and the point of application of the electrode is not a reliable safeguard. Further risks of ignition arise from

the spark gaps within the cabinet and from the possibility of the patient being at an electrical potential, with consequent risk of sparking to the operator or other conducting bodies.

In x-ray apparatus, careful construction of the electrical part and of the method of connection is essential for use in the presence of inflammable anesthetics. Sparking may occur from a defect in insulation, at switches, regulators, fan cooling motors or plug and socket connecters, the danger depending on the ventilation and proximity to the patient.

Surgical lamps have to be small, which has led to a form of construction that is not robust and therefore tends to fail with use. Sparking may be caused by accidental short circuiting of exposed terminals or by failure of insulation or intermittent contact. Sparking is particularly dangerous in nose and throat operations under ether-oxygen anesthesia. The danger of ignition is less with small low voltage dry cells than with other forms of supply, such as accumulators, transformers, motor generators and large dry cells. Grave risk of sparking is introduced by direct connection with public supply mains.

In addition to the possibility of sparking, the heat of an electrical cautery may ignite ether vapor. Ether-oxygen ignites by contact with hot metal at 300 C., which is below visible red heat.

STATIC ELECTRICITY

Under ordinary conditions the atmospheric humidity in this country is sufficient to prevent dangerous static electrification, but on very dry days or in rooms to which only dry warm air is admitted, sparking is possible. Insulated apparatus, such as rubber-tired patients' trolleys or portable anesthetic equipments, can be electrified in various ways, for example, by drawing a dry blanket or towel across them. Discharge by sparking may ignite ether-oxygen mixtures. This danger can be eliminated by humidification of the air or by earthing by means of a light trailing chain from trolley metal work to the floor. Ventilation is an effective means of preventing anesthetic explosions.

ANESTHESIA ACCIDENTS

The following accidents recently occurred in this country:

1. During an operation for dilation of a cancerous growth of the esophagus, while the surgeon was withdrawing a small surgical lamp an explosion occurred in the patient's mouth and also at the anesthetic apparatus, which burst into flames. The oxygen stream through the ether bottle had been stopped and the latter had been set to deliver chloroform and oxygen. It was found that some ether might have been drawn from the open delivery side of the bottle to join the main current of oxygen and chloroform.

2. While anesthetic equipment on a rubber-tired vehicle was being pushed alongside a similarly tired patient's trolley, an explosion occurred, injuring both patient and anesthetist. The air supply was treated and delivered by a ventilating plant and consequently was of low humidity. It was found that the insulated trolleys could be readily electrified by sharp movements of blankets. This possibility is now obviated by trolley chains.

3. A diathermy operation was in progress for carcinoma of the epiglottis. Intratracheal chloroform anesthesia was used, but the anesthetist thought it desirable to change to ether. An explosion occurred when the diathermy electrode was in the mouth. Some of those present were injured by the flying glass, and the patient subsequently died.

Inadequacy of Precautions Against Poison Gas

It seems to be past the wit of man to provide adequate protection against one of the latest developments of civilization—the bombing of cities with poison gas. In a press interview, Sir Gowland Hopkins, the president of the Royal Society and our leading biochemist, says: "If people are led to believe that gas masks alone will give protection they will be given a sense of false security. It would at least be necessary to provide suits. The enormous cost would be prohibitive." He has in mind poisons such as mustard gas, which penetrate ordinary clothing and attack the skin. He adds: "The growing tendency in official quarters of this and other civilized countries to accept the use of aircraft for unrestricted bombing and gas attack on civil populations is dangerous. The only defense is to abolish this form of warfare. The danger is that the public may be led to believe that science can give them complete protection." With the continued improvement in incendiary bombs, the fire peril grows greater. Some of the latest of these missiles, though more effective than ever, now weigh only about a pound. One small plane can carry hundreds. They burn with the intensity of magnesium and explode if water touches them. It is claimed that whole cities could be dotted with fires in a few minutes. It is impossible to look at the blaze from these bombs with the naked eye.

Tests with babies are being made by designers of the antigas containers which the government will distribute to parents in the event of another war. It was necessary to discover how an infant would react to varying air pressures. This was done by placing a baby in the container and observing its breathing. Poison gas, of course, was not used in the experiment. Experts have not yet been able to discover how to save a baby from suffocation if the parents working the pump that supplies air to the container are killed or disabled.

Murder by Plague Bacillus

In a previous letter to THE JOURNAL the case was reported in which a rich landowner of Pakur, in the province of Bihar, India, received a prick from an unknown man at a railway station in November 1933 and became ill and died. It was subsequently found that his stepbrother had tried to obtain a culture of the plague bacillus at the Haffkine Institute, Bombay, and that when he failed an Indian physician obtained one by representing that he wanted it for research. The stepbrother also appeared to have made a previous attempt of the kind on the life of the deceased. Both men were charged with conspiracy to murder, and they were convicted and sentenced to death. The case has just come before the high court of appeal, which commuted the sentence to transportation for life. The appeal bench observed that the case was unique in the annals of crime. The court commuted the sentence in view of the circumstantial nature of the evidence but held that the only reasonable inference was that the two men conspired to murder the deceased, for which purpose they provided some person or persons unknown with the plague obtained in Bombay, who at their instigation succeeded in infecting the victim. Part of the reason for commuting the sentence was that this course might lead to the discovery of the actual perpetrator of the crime.

Precautions Against Carbon Bisulfide Poisoning

The factory department of the government has issued a memorandum on precautions against poisoning, fire and explosions that may occur in the use of carbon bisulfide in artificial silk, india rubber and other manufactures. Poisoning arises from the inhalation of small quantities of the vapor over periods of weeks or months. The first symptoms are nausea, indigestion, giddiness and hysterical disturbances. Other symptoms are an appearance of anxiety with sweating of the hands and forehead. In the next stage there is impairment of memory, mental dulness and depression. Speech may be affected, with contraction of the visual fields and diminished power of accommodation. Toxic neuritis may manifest itself by muscular weakness, first in the muscles of the face and flexors of the forearm. Difficulty in walking leads to paralysis. Late symptoms are tremor, paresthesia, loss of sensibility and optic neuritis.

Carbon bisulfide poisoning in factory or workshop is compulsorily notifiable. Since 1924, eighteen cases have been notified in this country. Among the precautions laid down for prevention is the medical examination of workers at intervals not exceeding one month. The storage and pipe conveyance of carbon bisulfide must be satisfactory and explosions must be guarded against.

PARIS

(From Our Special Correspondent)

Feb. 25, 1936.

Meningitic Forms of Icterohemorrhagic Spirochetosis

Mollaret, of the Institut Pasteur, read three papers before the Société médicale des Hôpitaux de Paris on meningitic infection by Spirochaeta icterohaemorrhagica.

A fisherman in Seine came to the hospital with meningitic symptoms and in a few days had serious cardiorenal complications. The first lumbar puncture showed a normal spinal fluid; but the second, made on the sixth day, showed a meningitic reaction. The patient died suddenly on the seventh day from heart failure. Postmortem examination proved the spirochetic nature of the disease. The second patient was a garage man in a garage infested by rats. The spirochetic infection was not less authentic, but in this case the lumbar puncture revealed directly the meningitic condition. This was the only evidence of a spirochetic complication, in the lack of any clinical symptom. The disease was principally a generalized icterus with azotemia and albuminuria.

In their second paper, Mollaret and his co-worker Berthe Erber discussed the diagnosis of meningitic spirochetosis. The presence of the spirochete cannot be found in the spinal fluid. The spirochete is difficult to find in the urine, and as for inoculation in the rabbit, one can always suspect some attenuation of its virulence in the course of research. Best is serodiagnosis. Among the different technics the authors prefer the Martin and Pettit method, which involves agglutination of a virulent culture of spirochetes in increasing quantities of studied serum dilutions. A difficult question is the so-called zone action of agglutination; agglutination never appears before the 1:10 dilution and is not actually seen in most cases before higher dilutions, 1/100, or even 1/500 or 1/1.000. As a matter of fact, the positive tests always include the absence of agglutination in the first low dilutions. On the other hand, the meningitis being just an atypical form of spirochetosis, one may question the lack of causality between positive tests of spirochetosis and actual meningitic symptoms. The positive tests could include evidence of some former infection, not necessarily connected with the present infection. The authors answer the objection, pointing out that other spirochetes or other stocks do not show this absence of agglutination with low dilutions, which is characteristic of Spirochaeta icterohaemorrhagica. The morphology of agglutination allows some differentiations between the latter and the former.

In the third paper, Mollaret turned his attention to the physiopathologic sides of meningitic spirochetosis. In such cases, instead of a simple and ordinary propagation of the spirochetal infection to the meninges, from outside to inside, the whole disease seems to develop, as in a closed vessel, in the interior of the meninges. Apropos of such cases, contamination by the ethmoid was suggested in infested rivers, or by conjunctivitis, and the problem was that of permeability or nonpermeability of the agent from inside the meningitic sac to the outside. From study of the meningitic permeability to fuchsin, comparison between blood and spinal fluid agglutinins, and from some experiments on monkeys, the authors conclude that the reactions in the two diseases are identical. The pure spirochetic meningitis is consequently of the same value as any other visceral determination, no matter what kind of spirochetes are involved, as the cause of the ailment. As they themselves admit, these views are hypothetical and many questions remain unsolved.

American Memorial Hospital in Reims Enlarged

In 1925 Ambassador Merrick laid the first stone of the American Memorial Hospital in Reims, one of the most sorely tried of the French cities of the East. The funds, all of American origin, were given by many benefactors and organizations. The chairman of the corporation was, and still is, Miss Edith Bangs; the medical director is Dr. Marie Louise Lefort. The building, located in the suburbs of Reims, is a large one, with a pretty garden relieving the plainness of the exterior, and it dominates the surroundings, which are rather severe. The medical facilities are adequate to supply medical and surgical care to 112 children from birth to 14 years of age. The founders were apparently a bit too optimistic. They combined with the hospital a nurse school and to make room for the student nurses were obliged to lower the number of occupied beds. When some repairs were needed on the walls and roofs last year, one floor was added and the initial number of 112 beds installed. Happily, some funds remained free from the first gifts, which were good dollars and had fructified steadily over many years. They were sufficient to complete the building, and the American Memorial Hospital of Reims is now at its full extent. The names of the benefactors, mostly American, are piously engraved on the pleasant walls of the hospital.

BERLIN

(From Our Regular Correspondent)

Jan. 20, 1936.

Traumatic Epilepsy in Ex-Service Men

The follow-up examination of brain injuries over a period of twenty years became possible to Dr. Baumeyer, who in his official capacity has examined war veterans of the Dresden district presenting brain injuries. Under brain injury cases the Dresden welfare bureau for disabled veterans classifies men who have suffered direct brain injury even when no noticeable results of the injury were apparent, men whose injuries were followed by neurologic and psychic disturbances and veterans presenting traumatic epilepsy as a result of such injury. Men whose injuries were confined to the cranial bones or the dura were not so classified. The following were the principal symptoms presented by the men with brain injuries: uniform headaches markedly dependent on the weather, attacks of vertigo, slight irritability, increased susceptibility to mental fatigue, and troubled sleep. Baumeyer made follow-up examinations of 340 such cases in recent years. The most important fact noted from these examinations was the progressive deterioration manifest in many cases. This took a quite different course in various cases. Mental deterioration was more frequent than local phenomena, aphasia or dementia paralytica. Of the men with brain injuries undergoing follow-up examinations, 24 per cent presented traumatic epilepsy of the grand mal type; in a few cases jacksonian type convulsions without loss of consciousness were observed. Cases of absolute unconsciousness were infrequent. A prolonged state of stupor is as rare in traumatic epilepsy as are dementias, which may be observed in true epilepsy. The interval between brain trauma and the appearance of traumatic epilepsy varies greatly from more than eighteen years to only a few weeks. Heretofore not enough attention has been paid to mental deterioration without traumatic epilepsy. All stages are possible in these cases, from the mildest anemic disturbances to the most severe types of dementia. The men complain but little and show themselves negligent of their own interests. It is their relatives who first urge pension increases, medical treatment and so on. The condition of traumatic dementia, although multiform, almost always shows a diminu-

tion of the power of judgment and increasing irritability; the spheres of interest become greatly restricted. A further type exists in which the frontal brain has been injured: this is characterized by a great weakness of impulse, inordinate optimism and a permanent dazed condition without loss of consciousness. Fatal cases of purulent meningitis were also registered. On the other hand, some severe brain injuries had no consequences. When the injury was to the cranial bones, the patients had fewer headaches. Administration of a huge amount of narcotics was necessary, often in large doses. Traumatic epilepsy may be treated like true epilepsy but with less success.

Herpes Simplex

The etiology of herpes simplex has yet to be explained. Prof. Otto Naegeli, the Bern dermatologist, recently lectured on the subject before the Munich Medical Association. Herpes should be classed among infectious diseases even though it does not possess various characteristic indications. Naegeli has successfully accomplished transmissions of herpes, but proofs of person to person transmission are as yet lacking. Herpes would seem to be a defense mechanism of the human organism. It has a definite location and appears again and again in the same manner in some particular favorite place, as on the mouth and nose. The virus thus seems to be restricted to a certain locality. It may also have its site in the region of the anus or on the skin of the face. Incontestable infection by contact has not yet been observed. Whether or not a febris herpetica actually exists is still debatable. The assertion that febrile diseases may take a course favorable to the simultaneous appearance of herpes is based on experience in practice. Familial appearances of herpes have been repeatedly observed. Herpes may attack in many different manners. Children up to 5 years of age are seldom if ever attacked. Herpes chiefly occurs during the period from the middle of the second decade to the middle of the third. It is frequently encountered with epidemic meningitis. According to experience, whenever herpes makes its appearance in severe diphtheria the latter disease will run a much milder course than if herpes is absent. The same holds true for metasyphilis with the exception of tabes. Likewise in malariotherapy, Naegeli has learned by experience that better therapeutic results (speedier destruction of the nonmotile spirilla, symptomatic improvement) may be observed coincident with eruptions of herpes.

Instruction in Technical Hygiene

According to a recent ministerial order, instruction in technical hygiene (medical care in accident and occupational disease cases) is to be introduced as a subject of study. Moreover, the ideal sought is that no special lectures need be given but rather that this field may be completely divided up, each professor treating in conjunction with his regular lectures such aspects of the subject as pertain to his own field.

Prof. Ludwig Aschoff 70 Years Old

The eminent professor of pathologic anatomy of the University of Freiburg in Breisgau celebrated his seventieth birthday January 10. Aschoff has always recognized those fundamental principles of Virchow which time and increased knowledge have done much to develop. Aschoff's work embraces nearly all fields of general pathology and pathologic anatomy. He will probably be chiefly remembered for his contributions on thrombosis and on nephritis and for his studies on the origin of inflammations. His entrance into a discussion always adds something of value even when he evokes opposition. In the preface to his textbook of pathologic anatomy, Aschoff expresses himself as follows: "Let there be but one opinion and you have an end of research and knowledge." Already in his first major endeavors in the field of pathologic morphology Aschoff strove for a better comprehension of the pathologic processes and of the causes and nature of symptoms. Among his many other achievements was his explanation, in collaboration with Tawara, of the bundle of His and his work on pulmonary tuberculosis, on the functional organization of the stomach, and on the reticulo-endothelial system. He has made it possible to formulate a general theory of disease. He constantly has explored the connecting links between his own and other fields and in this way has gained a knowledge of new methods and trends that might be applicable to his own narrow specialty; one has only to recall, for example, his work with cholesterol. Hand in hand with his manifest ability as a scientist go a lively technic of presentation and an extraordinary mastery of language, gifts all of which combine to place the name of Aschoff among the most illustrious in his field.

BELGIUM

(From Our Regular Correspondent)

Jan. 27, 1936.

Congress of Psychiatry and Neurology

The thirty-ninth session of the Congress of Alienists and Neurologists of France and French speaking countries was held at Brussels. Among the subjects discussed were (1) hysteria and the psychomotor functions and (2) hysteria and the thalamencephalic functions. Mr. Paul Vervaeck discussed juvenile delinquency and criminality, pointing out that among the etiologic factors in juvenile delinquency the family milieu is important. Research undertaken in America and confirmed in Belgium shows that delinquency tends to have as its foci certain quarters and street corners that are nests of criminality. The influence of the youthful gang or that of individual pals cannot be underestimated; also the rôle of the cinema remains one of the most debatable questions. To cope with juvenile delinquency, an extensive array of well equipped institutions and efficient procedures is requisite: liberty under surveillance, semiliberty at home, placement away from the family, private detention homes, public detention homes, institutions for acute psychopaths and the mentally debilitated. In each of these procedures the cooperation of the psychiatrist is necessary. He is able to imbue efforts at readjustment with a sense of individual orientation. Such efforts presuppose an efficient personnel and a meticulous classification of the children; the Belgian "rehabilitation homes" furnish a fine example of what may be attempted in this field. Preventive measures in juvenile delinquency must not rely too much on purely medical disciplines or on eugenics. The best prophylaxis, based always on a good mental hygiene, should consist of such measures as enlightenment of ignorant parents, better orientation of school children showing criminal predispositions, the best possible program of work and recreation for adolescents. Children of abandoned morals should, on the authority of a magistrate of the juvenile court or others having tutelary jurisdiction, be committed to a private institution or perhaps with better results to those public or semipublic organizations the ramifications of which are to be found everywhere. Each of these steps in the prevention and treatment of delinquency opens up a wide field of activity for the psychiatrist.

Cancer in Slaughtered Animals

After an interchange of correspondence between Mr. Hautekeet, vice president of the Federation of Animal Protection Societies of Belgium, the minister of agriculture and the minister of the interior and of hygiene, it was decided that an investigation of cancer in slaughtered animals be launched at the Royal Medical Academy of Belgium, first by gathering information from the directors of the country's principal abattoirs and secondly by requesting that these directors make a collection of such tumors as might be encountered in the course of their examinations, and send them to the department of pathologic anatomy of the School of Veterinary Medicine. In

a year the slaughterhouse officials sent in fourteen shipments containing twenty-four selected specimens (four horses, eight head of cattle, one pig). Of these specimens only six were tumors; the remainder had to do with tuberculosis. Mr. Antoine, who reported on this question, has likewise attempted to collect tumors found in draft or farm animals. He was able to obtain only six specimens (four from horses, two bovine). For his part, Dr. Willems, director of the Laboratory of Veterinary Inspection, could collect data on a few rare cases of cancer in slaughtered animals. According to statistics compiled in several foreign countries, cancer seems to be rare in bovine creatures, but of course the fact remains that as yet these statistics are of but approximative value. In Belgium, examination after slaughter is required by law. The conditions under which total condemnation of a carcass is justified, however, possess no indication relative to cancer. General melanosis alone calls for total condemnation. In cases of partial condemnation, it is merely a question of condemning affected parts rendered unfit to be eaten by reason of injuries, abscesses, cysts, calculi, parasites or chronic deterioration (as of a visceral organ). Nor in dealing with these cases does the law make the slightest reference to cancer. Mr. Antoine requested that "tumors" be made mention of in those sections of the law which govern partial condemnation, and furthermore that the sections governing total condemnation should no longer refer to general melanosis but rather to generalized tumors or tumorous changes in certain organs. The prevalent opinion resulting from the discussion was that, considering the present state of our knowledge of cancer, it is important that the statute be amended to provide for a closer examination of meats destined for consumption and to prohibit sale in case of tumorous conditions, which certainly must be more frequent than existing statistics would lead one to believe.

ITALY

(From Our Regular Correspondent)

Jan. 15, 1936.

Medicine Pertaining to Sport

The Società di Medicina Sportiva met recently at Bologna under the chairmanship of Prof. Ugo Cassinis. Prof. Giovanni Pini of Bologna spoke on sport medicine in Italy. Sport medicine has developed greatly in Italy during the last few years. The number of practitioners in this branch of medicine is 2,000. Italian universities have made it their duty to provide sport physicians trained by competent teachers. Societies pertaining to sport medicine are obliged to employ the services of sport physicians. As a basis for the evaluation of the physical constitution of athletes in collecting international data, Viola's method of anthropometric-morphologic and physiologic measurements has been universally accepted since its verification at the congress held in Chamonix in 1934. The establishment of a university center for research in sport medicine has been suggested. Pini believes that better results would be obtained from the establishment of various regional centers located in state capitals.

Professor Cassinis studied accidents caused by athletics in the first year that the insurance branch, Cassa di previdenza, was in operation. Of 97,489 insured athletes there were 2,177 cases of traumatic injuries, the greater number of which occurred during football. According to the number of athletes who participate in athletics in relation to the number of accidents that occurred, the following percentages were obtained: accidents caused by English rugby (football), 9.90 per cent; boxing, 4.18 per cent; "heavy weight" athletics, 4.14 per cent, and football, 3.70 per cent. Mountain climbing gave a low percentage, 0.42, of accidents during the year, but the number of deaths was high (eighteen). The location of traumatic lesions varies with the sports and is typical for each group of sports, especially for football, boxing and cycling. For all sports taken together, contusions, distortions and fractures predominated. Among 2,177 accidents that occurred, permanent disability, either partial or total, was produced in 481 cases, or 22.04 per cent. The high percentage of accidents is due to the manner of playing the games and depends on the training of the players and on the application of the fundamentals during actual playing. In the groups of athletes of universities, more than 125,000 athletes were insured. Traumatic lesions occurred in only ninety-four cases of the group, resulting in permanent disability in three cases.

Professor Tranquilli made a statistical study of trauma caused by sport during the last five years and reviewed the 800 cases reported.

Professor Donaggio spoke on the Donaggio reaction and of its value as a test of fatigue. He stated that the obstruction phenomenon observed in the urine following physical exertion is a manifestation of a general reaction of the organism to intense muscular work and that it is more sensitive than the modifications of both the velocity of speed of the erythrocytes and of Arneth's formula.

Castellani in Military Service in Africa

Dr. Aldo Castellani, director of the clinic of tropical diseases at the University of Rome, has been appointed head of all the medical services, both military and civil, in Italian East Africa. Steps have been taken under his direction to prevent the appearance and spread of infectious diseases. All centers of military activities are provided with abundant supplies of water made potable by purification and filtration. Soldiers are given vitamins to complement their rations. They are provided with day clothing and wool covers to protect them against the changes of temperatures. Bacteriologic laboratories, centers for isolation of patients, have been established. Care is given to the early detection of infectious diseases, disinfection, disinfestation of places and betterment of the health conditions of camps and prisons. The network of sanitary centers includes military hospitals in connection with hospitals in Asmara and Massowah and with hospital ships, one of which is stationed in the port of Eritrea. Hospitals for convalescents, ambulant departments with experts for roentgen and dental work, automobile ambulances and railroad cars provided with equipment for sanitary work are all units of the sanitation of the colony which has been organized during the present military activities.

VIENNA

(From Our Regular Correspondent)

Jan. 18, 1936.

Psittacosis in Vienna

At the last session of the Vienna Society of Physicians, a woman patient from the clinic of Professor Eppinger was presented whose illness had been at first diagnosed as pneumonia. At the time of her admittance, despite quite trifling objective symptoms, the patient appeared severely ill. The localized nature of the pneumonic development aroused a suspicion of psittacosis, all the more as the patient had kept in her home two zebra-parakeets, one of which had sickened and died. Twelve days after the onset of the illness, samples of sputum were sent to the federal institution for campaigning against diseases of animals, where a diagnosis of psittacosis was made. It is noteworthy that in this case for the first time the director, Professor Gerlach, succeeded in culturing the typical causative agent of psittacosis in the blood serum as well as in the sputum. The patient, although nearly recovered, remained in quarantine. In the meantime the second bird had died and it was also found to have been infected. Thereupon the bird store which had sold the pets was investigated and an examination of the living parakeets in stock revealed a whole series of disease carriers. The store's entire stock of 146 birds, including zebra-parakeets,

canaries, wood birds and two birds of paradise, was ordered destroyed. Examination of the 146 bird cadavers showed infection to be present in a large majority. Professor Eppinger, who observed an epidemic of the disease in the Rhineland some time ago, stated that the "wandering" of the pneumonic focus such as had aroused suspicion in this Viennese case is a characteristic symptom. The discrepancy between the severity of the symptoms and the meagerness of the objective signs is also typical. Professor Gerlach, who, like Eppinger, also was in his time a member of the commission for the campaign against psittacosis, emphasized that not only parrots but also canaries can be infected with the disease and in turn become carriers. When, however, canaries have had no contact with diseased birds, that is to say, when they come from domestic breeding places, they are (and the same applies to home-bred as distinguished from imported parakeets) not dangerous. Caution should, however, be exercised with regard to such birds. Several times in the past year breeders of zebra-parakeets were stricken with pneumonia—one case ending fatally—without psittacosis being proved. Frequently small epidemics break out in seaports where sailors occasionally bring in infected parrots. Under such circumstances the disease is neither quickly recognized nor checked. Therapeutic measures in cases of psittacosis in man are at present only symptomatic. The mortality in epidemics observed fluctuated between 5 and 30 per cent.

The Campaign Against Hereditary Disease

In the course of a series of papers on "The Science of Heredity and Race," Prof. Julius Bauer spoke anew on "The Significance of Heredity in Man." This scholar, an acknowledged authority in the field, has reiterated his opinion that the theory of race as promulgated by the present rulers of Germany is based on false premises and leads to false conclusions. Dr. Bauer's views have made him hated by Nazi officials. The German delegations were forbidden to participate in the International Congress of Internists in Switzerland in 1935 unless Dr. Bauer was excluded. The Swiss convention was forced to yield to this pressure (or extortion) and to request that Dr. Bauer withhold his paper. In his latest lecture this scholar stresses the great significance of the proportions assumed in the last few years by the movement for a humanitarian application of man's knowledge of genetics. Particularly in Germany, legislation has been attempted which seeks to exercise preventive control of the aftergrowth of tainted heredity and which therefore authorizes the sterilization of insane persons and others classed as burdensome to the state. Sterilization of these persons is, however, as Bauer emphasizes, no adequate way to protect the humanity of the future from those who come into the world with a congenital disease. The only result of such sterilization is that a negligibly small number of persons is prevented from propagating. But at least 75 per cent of all living human beings possess pathologic inherited predispositions; consequently, since only some 25 per cent are free from such predispositions, the German legislation can never accomplish its professed purpose, the improvement of the race. It would be necessary to carry out this sterilization through from thirty to fifty generations. Moreover, it is a matter of common knowledge that many persons unwittingly possessing pathologic hereditary predispositions have made valuable and even great contributions to the cultural development of their race (among others, Beethoven, Spinoza, Mendelssohn, Nietzsche, Mohammed, Napoleon). Important results have been yielded by studies of the vital processes of unioval twins. The physical development as well as the mental (criminal type) of such twins takes place simultaneously in a perfectly homogeneous manner. Their fingerprints too are almost identical and the same holds true for their endowments and aptitudes.

Marriages

ADOLPHE P. DELCOURT, Hammond, La., to Miss Marion Weston of St. Francisville in New Orleans, Dec. 12, 1935.

CHARLES WALTON PURCELL, University, Va., to Miss Cleo Virginia Ashby in Raleigh, N. C., January 18.

ROBERT P. JEANES, Easley, S. C., to Miss Myrtle Helen Nelson at Spring Grove, Minn., Nov. 23, 1935.

EDWARD SINTON CARDWELL JR. to Miss Lily Mikell Legare, both of Columbia, S. C., Nov. 29, 1935.

ARTHUR B. DE GRANDPRE, Plattsburg, N. Y., to Miss Jane Ann Byrne in New York, January 11.

BASIL L. MERRELL, Waynetown, Ind., to Miss Elva L. Ross of Indianapolis, Nov. 28, 1935.

CARL V. BISGARD, Harlan, Iowa, to Miss Constance Lamar of Sioux City, January 25.

HUBERT GROS to Miss Jean Kramer, both of Delphi, Ind., in Franklin, Oct. 17, 1935.

AUDRA D. JAMES, Des Moines, Iowa, to Miss Bernice Nelson of Wilton, January 12.

Deaths

Southgate Leigh ✠ Norfolk, Va.; University of Virginia Department of Medicine, Charlottesville, 1888; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; member of the House of Delegates of the American Medical Association, 1916-1933; past president of the Tri-State Medical Association of the Carolinas and Virginia, Seaboard Medical Association, Atlantic Coast Line Railway Surgeons, Norfolk and Western Railway Surgeons Association, Chesapeake and Ohio Railway Surgeons Association, Southern States Association of Railway Surgeons, Norfolk County Medical Society and the Medical Society of Virginia; a founder, governor and fellow of the American College of Surgeons; member of the Southern Surgical Association; founder, visiting surgeon and gynecologist, Sarah Leigh Hospital; consulting surgeon to the Norfolk Memorial Hospital; in 1929 awarded the Distinguished Service Medal for the best civic work; aged 69; died, March 5, of cerebral hemorrhage.

Charles Warren Hooper, New York; Johns Hopkins University School of Medicine, Baltimore, 1914; an Associate Fellow of the American Medical Association; member of the Associated Anesthetists of the United States and Canada; at one time fellow and assistant professor of research medicine, Hooper Foundation, instructor and assistant professor of research medicine, University of California Medical School and the Hooper Foundation, San Francisco; for three years pathologic physiologist at the Hygienic Laboratory, U. S. Public Health Service, Washington, D. C.; formerly passed assistant surgeon in the reserve corps, U. S. Public Health Service; director of research medicine for the H. A. Metz Laboratories and the Winthrop Chemical Company, Rensselaer, N. Y.; aged 45; died, January 27, in St. Peter's Hospital, Albany, of pneumonia.

Henry Patterson Bagley ✠ Galesburg, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; at various times associate, and instructor in laryngology and otology, Rush Medical College, Chicago, and assistant professor of ear, nose and throat diseases at Loyola University School of Medicine, Chicago; served during the World War; formerly on the staffs of the Chicago Eye, Ear, Nose and Throat Hospital, St. Mary's of Nazareth Hospital and the Illinois Charitable Eye and Ear Infirmary, Chicago; aged 59; on the staff of the Galesburg Cottage Hospital, where he died, February 8, of pneumonia.

William Burton De Garmo ✠ Coral Gables, Fla.; University of the City of New York Medical Department, 1875; member of the Medical Society of Virginia; professor of special and clinical surgery, New York Post-Graduate Medical School and Hospital, 1888-1918 and since 1918 consulting surgeon; fellow of the American College of Surgeons; captain in the medical reserve corps in 1917; author of "Abdominal Hernia—Its Diagnosis and Treatment," 1907; aged 86; died, January 3, as the result of a hip fracture received in a fall.

William Henry Wenning, Cincinnati; Miami Medical College, Cincinnati, 1871; at one time clinical professor of gynecology at his alma mater; professor of obstetrics at the Woman's Medical College and the Cincinnati Medical College; for many

years president and member of the staff of St. Mary's Hospital; at one time president and secretary of the Cincinnati Academy of Medicine; aged 85; died, Dec. 25, 1935, of angina pectoris and coronary occlusion.

Lynne Arthur Hoag, Barrington, R. I.; University of Michigan Medical School, Ann Arbor, 1918; associate professor of pediatrics, Cornell University Medical College, New York; at one time instructor in pediatrics and infectious diseases at his alma mater; assistant professor of anatomy, Vanderbilt University Medical Department, Nashville, Tenn., and assistant in pediatrics, Harvard University Medical School, Boston; aged 43; died, February 16.

Frederick McDonell Harkin ✠ Marquette, Mich.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1885; fellow of the American College of Surgeons; past president of the Upper Peninsula Medical Society; health officer of Marquette; attending surgeon to St. Mary's and St. Luke's hospitals; aged 72; died, January 23.

Frederick August Baumgart ✠ Danville, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; past president of the Vermilion County Medical Society; on the staffs of the Lakeview Hospital and St. Elizabeth Hospital; aged 61; died, January 15, of angina pectoris.

Harvey Bradley Gratiot ✠ Dubuque, Iowa; Jefferson Medical College of Philadelphia, 1896; past president of the Dubuque County Medical Society; fellow of the American College of Surgeons; served during the World War; on the staffs of the Finley and Mercy hospitals; aged 61; died, January 13, of pneumonia.

Gilbert B. Pfoutz, Salt Lake City; University of Pennsylvania Department of Medicine, Philadelphia, 1888; member of the Utah State Medical Association; fellow of the American College of Surgeons; member of the consulting staff of St. Mark's Hospital; aged 71; died, January 2, of chronic nephritis.

Howard Fruin Hubbard ✠ Rome, N. Y.; University of the City of New York Medical Department, 1887; county coroner; for many years president of the board of managers of the Oneida County Hospital; aged 67; on the staff of the Rome Hospital, where he died, January 1, of coronary thrombosis.

Edward A. Travis, Como, Tenn.; University of Louisville (Ky.) Medical Department, 1881; past president of the Henry County Medical Society; formerly member of the state legislature and county board of education; aged 75; died, Dec. 28, 1935, in a hospital at Paris, of bronchopneumonia.

Thomas Charles Phillips, Milwaukee; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887; formerly professor of ophthalmology and otology and dean, Wisconsin College of Physicians and Surgeons; aged 76; died, January 4, of carcinoma of the prostate.

Daniel Oscar Willis, Leesville, La.; Memphis (Tenn.) Hospital Medical College, 1904; member of the Louisiana State Medical Society; served during the World War; aged 60; died, Dec. 23, 1935, in a hospital at LeCompte, of injuries received in an automobile accident.

Maurice Albert Stark, Newington, Conn.; Dartmouth Medical School, Hanover, N. H., 1897; member of the New Hampshire Medical Society; served during the World War; on the staff of the Veterans Administration Facility; aged 61; died, Dec. 29, 1935.

Wilson Boyd Cathcart, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1888; member of the Medical Society of the State of Pennsylvania; aged 70; died, January 10, in the Hillsview Farms Sanitarium, Washington, Pa., of lobar pneumonia.

Tully Joseph Liddell ✠ Surgeon, U. S. Public Health Service, Chicago; Tulane University of Louisiana Medical Department, New Orleans, 1912; aged 49; executive officer of the U. S. Marine Hospital, where he died, Dec. 1935, of coronary thrombosis.

William Josephus Robinson ✠ New York; University of the City of New York Medical Department, 1893; author of numerous books on sex and urologic subjects; aged 66; died, January 6, of essential hypertension and coronary artery thrombosis.

Bert William Babcock, Grand Rapids, Mich.; St. Louis University School of Medicine, 1903; member of the Michigan State Medical Society; on the staff of the Michigan Soldiers' Home; aged 56; died suddenly, January 8, of aortic insufficiency.

John Pomfret Long, Sheffield, Ala.; University of Virginia Department of Medicine, Charlottesville, 1907; member of the Medical Association of the State of Alabama; served during the World War; aged 59; was found dead, January 4.

William Russell Callen, Birmingham, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1903; member of the Medical Association of the State of Alabama; aged 58; died, January 29, of ruptured gastric ulcer.

Charles E. Colwell ✠ Aurora, Ill.; Hahnemann Medical College and Hospital, Chicago, 1885; past president of the West Aurora School Board; on the staff of the Copley Hospital; aged 71; died, January 10, of angina pectoris.

Edward Shafer Wendt, Toledo, Ohio; Miami Medical College, Cincinnati, 1902; served during the World War; on the staff of St. Vincent's Hospital; aged 59; died, Dec. 31, 1935, of cardiorenal disease and rectal abscess.

N. A. Jenkins, Columbia, S. C.; Leonard Medical School, Raleigh, 1908; superintendent of the Waverly Fraternal Hospital; aged 55; died, Dec. 22, 1935, in the Peter Bent Brigham Hospital, Boston, of myeloid leukemia.

Arthur R. Mattingly, New Orleans; Tulane University of Louisiana Medical Department, New Orleans, 1887; at one time member of the state board of health; aged 71; died, Dec. 22, 1935, of chronic myocarditis.

Frank Petty Hixon, Pensacola, Fla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1898; served during the World War; aged 61; died, January 4, of chronic myocarditis and cardiac decompensation.

Lewis B. Hoagland, Oxford, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1880; member of the Medical Society of New Jersey; aged 77; died, January 9, of chronic myocarditis.

William F. Stewart, New Martinsville, W. Va.; Jefferson Medical College of Philadelphia, 1881; formerly a druggist; aged 76; died, Dec. 27, 1935, of mitral stenosis and chronic pulmonary tuberculosis.

Louis Rominger, Ann Arbor, Mich.; Louisville (Ky.) Medical College, 1899; member of the Michigan State Medical Society; aged 76; died, January 2, in the Harper Hospital, Detroit, of carcinoma.

Kiyoshi Matsumura ✠ San Francisco; University of California Medical School, San Francisco, 1928; aged 47; died, January 5, of tuberculosis of the lumbar spine, arthritis and multiple infections.

Sumner J. Ricker ✠ Aurora, Ill.; Hahnemann Medical College and Hospital, Chicago, 1871; College of Physicians and Surgeons of Chicago, 1891; aged 88; died suddenly, January 4, of heart disease.

Malachi R. French, Evansville, Ind.; Pulte Medical College, Cincinnati, 1880; on the staff of the French Hospital; aged 77; died, January 7, in St. Mary's Hospital, of coronary thrombosis.

Stephen Edward Ulmer, Cleveland; Jefferson Medical College of Philadelphia, 1896; aged 67; died, Dec. 30, 1935, in the Grace Hospital, of chronic nephritis, arteriosclerosis and myocarditis.

George W. Richardson, Westpoint, Va.; Medical College of Virginia, Richmond, 1880; aged 76; died, Dec. 28, 1935, in the Johnston-Willis Hospital, Richmond, of cerebral hemorrhage.

Hubbard McKee Hoyt, Pacific Grove, Calif.; Chicago Homeopathic Medical College, 1886; aged 77; died, January 3, of paralysis agitans, Parkinson's disease and bronchopneumonia.

Astus S. Magee, Pensacola, Fla.; Louisville (Ky.) National Medical College, Medical Department State University, 1910; aged 57; died, January 8, of malignant neoplasm of the bones.

John Oliver Nichols, Etowah, Tenn.; Tennessee Medical College, Knoxville, 1894; member of the Tennessee State Medical Association; aged 64; died, Dec. 31, 1935, of pneumonia.

Myron G. Spawn, Beloit, Wis.; Hahnemann Medical College and Hospital, Chicago, 1890; formerly health officer of Beloit; aged 73; died, Dec. 23, 1935, of Parkinson's disease.

George Patrick Morris, Boston; Harvard University Medical School, Boston, 1891; member of the Massachusetts Medical Society; aged 75; died, January 4, of cerebral thrombosis.

Peter Stewart ✠ Royal Oak, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891; aged 66; died, January 2, of coronary sclerosis and thrombosis.

Isabel Haslup Lamb, Washington, D. C.; Howard University College of Medicine, Washington, 1897; aged 71; died, January 18, of coronary occlusion and chronic myocarditis.

Joseph W. Eargle, Chapin, S. C.; Medical College of the State of South Carolina, Charleston, 1874; aged 88; died, January 4, in the Baptist Hospital, Columbia, of pneumonia.

Haynes Brinson, Kissimmee, Fla.; Atlanta (Ga.) College of Physicians and Surgeons, 1912; member of the Florida Medical Association; aged 52; died, January 7, of myocarditis.

Cecil S. Hudson, Rosebank, N. Y.; Baltimore Medical College, 1905; since 1921 acting assistant surgeon, U. S. Public Health Service; aged 57; died, Dec. 27, 1935.

Frank F. Finch, Cleveland Heights, Ohio; Cleveland University of Medicine and Surgery, 1895; aged 63; died, Dec. 29, 1935, of chronic nephritis and myocarditis.

Vincent Joseph Noone, Indianapolis; Indiana University School of Medicine, Indianapolis, 1931; aged 29; died, January 4, in St. Vincent's Hospital, of pneumonia.

William James Burden, Rochester, N. Y.; Trinity Medical College, Toronto, Ont., Canada, 1895; aged 67; died, January 10, of myocarditis and diabetes mellitus.

Henry Wendell Colborne, Wingham, Ont., Canada; Western University Faculty of Medicine, London, 1922; aged 42; died suddenly, January 28, in Toronto.

Thomas Moran, Biddeford, Maine; Vanderbilt University School of Medicine, Nashville, Tenn., 1903; aged 76; died, January 3, of cerebral hemorrhage.

Hiram Knox Butler, Summit, Miss.; New Orleans School of Medicine, 1869; Confederate veteran; aged 88, died, January 3, of hypertension and nephritis.

Landon O. Rodes, Sikeston, Mo.; Missouri Medical College, St. Louis, 1890; aged 70; died, Dec. 24, 1935, of arteriosclerosis and coronary thrombosis.

Joseph Cannon Ellis, Philadelphia; Jefferson Medical College of Philadelphia, 1888; also a minister; aged 74; died, January 4, of bronchopneumonia.

James Jackson Stewart, Mount Holly, N. C.; North Carolina Medical College, Davidson, 1904; aged 59; died, January 1, of a self-inflicted bullet wound.

William Kent Ruble ⊕ Seattle; Tulane University of Louisiana Medical Department, New Orleans, 1924; aged 39; died, January 1, of pneumonia.

Joseph Bostock McHenry, Minerva, Ohio; Medical College of Ohio, Cincinnati, 1907; served during the World War; aged 58; died, Dec. 24, 1935.

William Gabriel Lewis, Eufaula, Ala.; Atlanta Medical College, 1884; aged 75; died, Dec. 26, 1935, as the result of an injury received in a fall.

Ernest Leslie Ward, Elkland, Pa.; Medico-Chirurgical College of Philadelphia, 1902; aged 59; died suddenly, January 1, of coronary thrombosis.

George Baxter Poole, Nashville, Tenn.; University of Nashville Medical Department, 1910; aged 50; died, January 3, of cardiac thrombosis.

Frank Temple Lamb, Berkeley, Calif.; California Medical College, San Francisco, 1896; aged 77; died, Dec. 26, 1935, of bronchopneumonia.

Daniel Robert Hughes, Lewistown, Pa.; Temple University School of Medicine, Philadelphia, 1927; aged 35; died, January 5, of heart disease.

Carlton A. Bates, Hillsdale, Mich. (licensed in Michigan in 1900); aged 63; died, January 5, of chronic endocarditis and cerebral embolism.

Alonzo A. Kester, Fort Wayne, Ind. (licensed in Indiana in 1897); Civil War Veteran; aged 93; died, January 1, of chronic nephritis.

Charles Sturgill, Garrett, Ky.; University of Louisville Medical Department, 1908; aged 49; died, Dec. 26, 1935, of heart disease.

Charles Felix Dale, Louisville, Ky.; University of Louisville Medical Department, 1906; aged 53; died, January 2, of pneumonia.

Edmund Shields ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1889; aged 71; died, Dec. 30, 1935, of coronary sclerosis.

Corlin Heath Snyder, Montebello, Calif.; Michigan College of Medicine and Surgery, Detroit, 1893; aged 80; died, Dec. 16, 1935.

Christina Scott Clegg, Los Angeles; College of Physicians and Surgeons, Keokuk, Iowa, 1897; aged 75; died, Dec. 11, 1935.

Robert Young Fisher, Parsons, Tenn. (licensed in Tennesee in 1889); aged 67; died, Dec. 30, 1935, of heart disease.

Joseph Huberti, Fox Lake, Wis.; Rush Medical College, Chicago, 1888; aged 78; died, Dec. 27, 1935, of myocarditis.

Correspondence

IONIZATION TREATMENT FOR HAY FEVER

To the Editor:—I have read with interest the article "Disappointing Results from the Ionization Treatment for Hay Fever," by Dr. Maximilian A. Ramirez (THE JOURNAL, January 25, p. 281). I am at a loss to understand why Dr. Ramirez secured such poor results from a method that has been satisfactory not only to me but to many leading rhinologists of this country. I know there is no way of "guaranteeing" to cure anything about the human body, but the results that I have secured from my own method, as compared with results obtained by the use of pollen antigen, have been superior as far as it is possible to estimate from the statistics available. Also, it is interesting to note that a large percentage of the patients treated by ionization had previously received treatment, by injection of pollen extracts, at the hands of some of our most prominent allergists. Figures compiled early in 1935 from the records of the users of ionization treatment showed an average of 80 per cent cures.

H. L. WARWICK, M.D., Fort Worth, Texas.

REVERSE COLLES FRACTURE: RATIONAL TREATMENT

To the Editor:—During the past year there have been several articles in THE JOURNAL regarding the reverse Colles, or Smith, fracture. Webb and Sheinfeld (June 29, 1935, p. 2324) reviewed the literature and presented a case of their own in which open reduction was required. They stated that they had been unable to find a report of a successful closed reduction and thus concluded that all fractures of this type should be regarded as cases for primary operation. Raymer (Dec. 28, 1935, p. 2150) presented a case of Smith fracture which was treated successfully by closed reduction. His conclusion was that this method should be tried in all reverse Colles fractures and that operation should not be resorted to until several attempts at manipulation have proved unsuccessful. In the same issue Bettman and Tannenbaum (p. 2151) presented a reverse Colles fracture treated by closed manipulation and stated that they had had several other similar cases. Their conclusion, like that of Raymer, was that manipulation should be attempted in all cases prior to operative intervention.

I cannot fully agree with either side of the controversy as it has been stated, for neither side has taken into consideration the point which I consider of greatest importance in determining the method of choice for handling these fractures. There are reverse Colles fractures in which closed reduction is quite likely to prove successful. There are others—and they are in the majority—in which one can safely predict that it will fail. The vital factor is the direction of the fracture line. If it is wholly or partly transverse, as it was in the case reported by Raymer and in that reported by Bettman and Tannenbaum, closed reduction is quite likely to prove successful. If it is oblique, as it was in the case reported by Webb and Sheinfeld, operation is the only hope of obtaining adequate reduction.

Colles and Smith fractures are both fractures of the lower end of the radius, the distinction being that in the Colles fracture the lower fragment is displaced posteriorly while in the Smith fracture it is displaced anteriorly. The Colles fracture is produced usually by a blow on the palm of the hand, forcing the wrist into hyperextension and breaking the radius by indirect violence just above the widened lower end of the bone. It is almost always transverse, and when properly and completely reduced by manipulation it tends to remain in position.

The Smith fracture is produced usually by a blow on the back of the hand, forcing the wrist into hyperflexion and breaking the radius, also by indirect violence. The anterior surface of the bone usually gives way just above its widened lower end, but the posterior cortex often breaks much closer to the joint, causing a fracture line which runs diagonally downward from the anterior to the posterior surface of the bone. Such a fracture may be reduced by traction, but it will not stay in position unless the traction is maintained. Attempts to hold it in place by ulnar deviation and dorsal flexion of the wrist usually result in tilting the short lower fragment without accomplishing their purpose.

On analyzing the mechanics of the breaking force in relation to the size and shape of the lower end of the radius, one can understand why the Colles fracture is nearly always transverse while the reverse Colles is often oblique. When the wrist is forced into hyperextension the strain comes on the anterior surface of the bone, which gives way at its weakest point. This is just above the widened lower end of the bone. As the force continues to act, the strain continues on the still unbroken bone until it is fractured completely. The natural tendency is for the break to continue at the same level at which it started, causing a transverse line of fracture. When the wrist is forced into hyperflexion the strain comes first on the posterior surface of the bone, which gives way at its weakest point. The posterior surface of the lower end of the radius is not reinforced close to the joint as is the anterior surface. Thus the break in the cortex may occur at a point very near the joint. As the force continues to act, the strain continues on the still unbroken bone until it is fractured completely. The natural tendency is for the break to continue at the same level at which it started, but this tendency is offset by the fact that it encounters thicker and stronger bone as it progresses toward the anterior surface. Before sufficient strain has been placed on this stronger area to break it, the weaker bone proximal to it gives way, and the break thus progresses proximally as it progresses dorsally. This causes a fracture line which is oblique rather than transverse.

It is known from experience with fractures elsewhere in the body that the difficulty of reduction and retention depends largely on the obliquity of the line of fracture and to a much lesser extent on the direction of displacement of the fragments. In this respect, fractures of the lower end of the radius are no exception. A reverse Colles fracture is difficult to reduce not because the lower fragment is displaced anteriorly but because the fracture line is usually more or less oblique. When the patient has the good fortune to break his radius transversely, no matter what direction the lower fragment is displaced, he can be treated by closed manipulation. When the fracture line is sufficiently diagonal he will require open reduction whether the lower fragment lies anterior or posterior. In short, it is not the name of the fracture that makes it irreducible by closed methods nor the direction in which displacement occurs, but the obliquity of the fracture line.

In order to obtain a good functional result in fractures close to a joint it is necessary that good anatomic reposition of the fragments be secured, with as little trauma as possible. This fundamental precept is particularly applicable to fractures close to the wrist joint. Bearing this point in mind, one must choose the method of reduction that will be most likely to succeed. I do not believe it is any better surgery to make several attempts to achieve a closed reduction in a case that is obviously operative than to rush the patient into an operation in a case in which closed reduction is quite likely to be successful. I do believe that one can judge fairly accurately which cases are undoubtedly operative and which are nonoperative by studying the roentgenogram, paying particular attention to the obliquity of the line of fracture. Naturally there will be borderline cases in which it is not possible to decide whether or not closed reduction will succeed. These cases should have the benefit of one conscientious effort at closed reduction under fluoroscopic control. It can then be decided whether or not open reduction will be required.

I would suggest, therefore, that in all cases of fracture about the wrist, whether Colles or the reverse, the physician should study carefully the line of fracture as shown in lateral x-ray films and base his judgment of the correct method of reduction on the degree of obliquity of the line of fracture, reserving for primary open operation without preliminary manipulation those which show a totally oblique fracture line and attempting a closed reduction in those in which the line of fracture is wholly or partially transverse.

W. STUART WOOD, M.D., Decatur, Ill.

BURNING TONGUE

To the Editor:—May I take the liberty of remarking that the answer to our colleague's query (Queries and Minor Notes, THE JOURNAL, February 1, p. 403) on burning of the tongue is somewhat incomplete.

If reduction in the volume of the tongue is really indicated, the use of the multiple cautery or the removal of a wedge-shaped piece of tongue tissue will probably help accomplish this. It is evident, however, that it will not favorably affect either the burning question in the mind of the attending physician or the burning in the tongue of the patient. Burning tongue, in the absence of acquired gross pathologic changes in the mucous membrane, is observed in such varied states as simple glossodynia, glossodynia exfoliativa, the avitaminoses, the anemias, the irritated and inflamed grooves of a scrotal tongue, and Lain's disease (burning due to the presence of dissimilar metallic dentures).

It appears to me that the patient concerning whom the Kentuckian writes has in all probability a congenital macroglossia (of acromegalic, lymphangiomatous or unknown nature) with, and this is not unusual, an associated grooved tongue. The lingual imprints of the dental arch are commonly observed in the flabby tongue of the grosser manifestations of this disorder and under these conditions is sometimes termed lobulated tongue. It is stated that the patient has deep "fissures"—probably meaning deep furrows, since fissures usually connote a break in the epidermis—also usual with this complaint. Given a grooved tongue in which the furrows are very deep, the irritation and burning which occasionally develop are usually due to the fact that food collects deep in such sulci and undergoes decomposition, and the products of this decomposition, perhaps with superadded infection, produce the irritation and the burning. If the lips of such affected grooves are separated and their bases thoroughly cleansed at regular intervals with warm sodium perborate solution, rapid improvement generally follows, as the late Dr. Walter Highman of New York pointed out several years ago. Aside from those already noted, there are of course other causes for burning sensations in the tongue, such as those connected with Sluder's lingual tonsillitis, Costen's temporomandibular joint derangement, cancerophobia and lingual papillitis. The doctor speaks of "white blebs" forming on the borders and tip of the tongue. Is it possible that he has designated as "white blebs" the whitish areas (leukoplakia of mechanical origin) that one often sees on the borders of such tongues? One other point in connection with the case is that the examination for the cause of any existing macroglossia is incomplete without serologic studies for syphilis.

SIGMUND S. GREENBAUM, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OSTEO-ARTHRITIS OF SPINE

To the Editor:—My mother, aged 68, until a year and a half ago had unusually good health. Her present illness began at that time, when she began complaining of vague symptoms characteristic of chronic cholecystitis. I advised her to go to a hospital, where a series of roentgenograms revealed a low grade chronic cholecystitis and osteo-arthritis of the spine. Her blood pressure at that time was 100 systolic, 60 diastolic. She had no jaundice at any time in her life. She was markedly emaciated but had considerable subcutaneous fat. Her blood picture was characteristic of a secondary anemia. The predominant symptoms that caused her most discomfort were intermittent dull aching pains in the region of the navel and lumbosacral region of her back, varying from an hour to five hours at a time, associated with distention following meals. On the advice of the hospital doctor she was sent home. Another doctor performed a cholecystectomy. She got along quite well but the abdominal and back pain symptom recurred. This pain has been unbearable. June 29 she fractured her left femur at the intertrochanteric point and has gotten along quite well. Of course, this is incidental; but she persists to complain more of this abdominal and back discomfort than all other previous symptoms combined. I should appreciate any reference or information which you might offer that would be helpful to her.

M.D., Ohio.

ANSWER.—The osteo-arthritis of the spine may be incidental and may not be causing the symptoms that might be attributed to it. Every effort should be made to eliminate carcinoma of the stomach, pancreas, liver or duodenum. It is possible that the fracture of the femur was pathologic.

Osteo-arthritis of the lumbosacral region would not cause pain in the region of the umbilicus. It would be more apt to work the other way; i. e., osteo-arthritis of the twelfth thoracic and first and second lumbar vertebrae would give pain at a lower level in front. In radicular cases the pain is referred to an area lower down, usually following the general direction of the ribs.

The best way to prove whether osteo-arthritis is an important factor in this case is the therapeutic test of treatment in the nature of bed treatment with boards under the mattress, either head and belt traction or a slightly curved Bradford frame, and physical therapy consisting of gentle massage, heat, and diathermy, if the patient responds favorably.

It is being taken for granted that gross foci have been eliminated from the picture, such as the teeth, tonsils and the genito-urinary and gastro-intestinal tracts.

DANGERS IN USE OF ETHYL OR HIGH TEST GASOLINE

To the Editor:—A question has arisen as to whether employees of the company with which I am connected using ethyl gasoline or any other high test gasoline in the washing of automobile parts, such as gears, were subjecting themselves to any extra hazard more than they would by using the ordinary low test gasoline. I am unable to find any literature on this subject.

W. G. Hzss, M.D., Holtwood, Pa.

ANSWER.—All or many of the gasoline station pumps dispensing ethyl gasoline display a sign reading "Contains lead (tetra-ethyl) and is to be used as a motor fuel only; not for cleaning or any other use. Avoid spilling." This familiar sign apparently is the outgrowth of recognition that this form of lead, unlike inorganic forms, may enter the body through the skin and thus cause lead poisoning. However, the quantity of tetra-ethyl lead per gallon of gasoline is so low (approximately 1.6 cc.) that poisoning by absorption through the skin is not likely. Of this, Kehoe and his associates *(J. Indust. Hyg.* **16**:100 [March] 1934) state: "It penetrates the unbroken skin. Indeed, skin absorption alone may result in the rapid production of acute illness and death in experimental animals. From a physical point of view, the volatility of tetra-ethyl lead is low, but in toxicological terms it is dangerously high, since at ordinary temperatures air saturated with its vapor contains approximately 5 mg. of lead per liter." At another point they state: "Their [garage mechanics] exposure to lead in exhaust gas of automobiles burning leaded gasoline is greater, therefore, than any other group of persons in the community. Further, the handling and the spillage of gasoline, the adjustment of carburetors and the repair of other parts of the car often involve skin contact with gasoline and with lubricating oil which may contain minute amounts of tetra-ethyl lead." However, these investigators maintain that no evidence is at hand showing lead absorption following skin contact in the ordinary course of the distribution and use of tetra-ethyl lead. Notwithstanding, it is pointed out that the use of ethyl gasoline for metal washing serves no known useful purpose not obtained through the use of ordinary gasoline. Any such practice as a routine procedure may not be condoned. With respect to "other high test gasolines" it is pointed out that added toxicologic significance is to be attached to them when used for metal cleaning purposes if these gasolines are more readily volatile than "ordinary low test gasoline." Particularly is this true if the fuel is or contains coal tar benzene (benzol). The vapors of all gasolines, naphthas and benzines are toxic and similarly so except that the readier the volatilization the greater the prospect of damage, other things being equal. From the point of view of the physician, preference is extended to the high boiling petroleum derivatives for cleaning purposes.

MUSCULAR ATROPHY

To the Editor:—I have a case of muscular atrophy that seems to defy classification. A housewife, aged 21, married three years, offers as her chief complaint weakness and general wasting of her muscles. The condition started one year ago. At that time she was six months pregnant and gave birth to a dead fetus. Together with this she developed what she called a severe cold, sinus trouble and painful, discharging ears. This condition lasted about a week and was followed by numbness in the feet and hands, which in turn was followed by a stiffness in the legs. She was unable to walk and has been in bed since. Then began a gradual wasting of the small muscles of the hands and feet and a progressive involvement of both upper and lower extremities. Throughout the whole year she has been having pain in the legs. Her only previous illness was that of measles during early childhood; she always enjoyed good health and never noted any weakness in her limbs. There is no history of muscular atrophy in any of the members of the family. Her mother and father, brothers and sisters, are all living and well. Her only pregnancy was the one mentioned. From her family physician it was learned that at the onset of this condition she was emotionally unstable. She cried easily, worried considerably, and her tendon reflexes at that time were generally exaggerated. The patient is quite happy and answers questions intelligently. There is a general atrophy of the muscles, with the exception of the face and neck. The head does not fall forward. The muscles of the thorax and abdomen show considerable atrophy, but not so marked as that of the extremities. The thyroid is visibly and palpably enlarged. The upper extremities show the simian type of hands. The feet show a similar type of wasting, with the toes flexed. There is a glossy appearance of the skin over the hands and feet, showing trophic disturbance. There are some decubital sores over the sacrum. The tendon reflexes in both upper and lower extremities are absent. The Babinski reflex is normal. The patient is able to move both hands and feet, but the toes and fingers are contracted and almost entirely flexed. There is no fibrillary twitching. A definite lateral nystagmus is noted. The pupils are equal and regular and react to light and in accommodation. With the exception of a hypersensitivity about the feet, there is no sensory disturbance. There is no loss of sphincter control. The laboratory report shows 3,380,000 red blood cells, 95 per cent hemoglobin, 3,850 white blood cells, 57 per cent polymorphonuclears, 32 per cent small lymphocytes, 2 per cent large lymphocytes, 3 per cent eosinophils and 4 per cent myelocytes. The blood Wassermann reaction is negative. The spinal fluid Wassermann test shows 2 cells per cubic millimeter. There is a very faint trace of globulin. The colloidal gold curve is normal. The Wassermann reaction is negative in all concentrations. Spinal fluid examination was done on three different occasions during the past year. The basal metabolic rate is —12. Poentgen examination shows no evidence of articular changes. The small bones of both extremities show osteoporosis. I will appreciate your opinion on this case.

M.D., Pennsylvania.

ANSWER.—The record of the patient in this case is seemingly clear. The onset of the illness during pregnancy, especially as this coincided with a period of a severe cold, sinus trouble and discharging ears, suggests the definite possibility of a toxic infectious process. Conditions of this type have been described under several headings, such as neuronitis, infectious polyneuritis and neuronitis of pregnancy and seem to fit the case satisfactorily. The absence of fibrillary twitchings in the muscles probably rules out chronic poliomyelitis. The pain in the legs, the glossy skin, the loss of reflexes and the hypersensitivity about the feet are quite in keeping with a polyneuritic disturbance. It is true that, as a rule, there are more sensory disturbances than were noted in this patient, but the degree of sensory loss is exceedingly variable in these cases.

It would have been interesting to know the exact amount of total protein in the spinal fluid, as in cases of so-called neuronitis the total protein is markedly increased. Occasionally in cases of this type there may also exist a retrobulbar neuritis.

If the diagnosis of a neuronitis is correct, the patient should slowly improve. It is advisable to eradicate all possible foci of infection. The patient should be placed on a high vitamin diet, as occasionally a vitamin deficiency is an element in the production of the symptoms. Baths, massage and supportive measures to the affected parts should be employed over a protracted period of time.

"MILK FEVER"

To the Editor:—Dr. De Lee in his textbook of obstetrics emphatically states that "there is no such thing as milk fever." Recently I had a patient under my care whose temperature rose to 102 F. on her third postpartum day. There was no sign of infection in the genitalia or in any other part of the body. The breasts were large, hard, congested and painful. The breast pump was used once and an ice bag applied continuously. About three hours later the temperature dropped to normal, remaining so the rest of her stay in the hospital. On what grounds could you explain this rise and drop of temperature?

M.D., Ponce, Puerto Rico.

ANSWER.—In olden times infection was so common after delivery that midwives and doctors had to present an alibi. "Milk fever" was such an alibi and was said to be due to a turning in of the milk. Indeed, the postmortem examination of women who died of this disease often showed coagulated milk and cream in the peritoneal cavity and in the joints, which is now recognized as pus. With the generalization of antiseptic and aseptic measures, this form of "milk fever" has disappeared. Thousands of women have immensely engorged breasts, so bad sometimes that they cannot bring their arms to their sides and yet they have no fever.

Theoretically, one might imagine that resorption of milk from engorged breasts, especially if injured, might cause fever; but there is very little milk in engorged breasts. Milk is formed as it is drawn and then the lymphatic and vascular engorgement subsides.

Injection of milk has been used to produce a foreign protein reaction. Mild cases of infection that can cause a temperature of 102 or 103 often occur without a single local symptom or finding on examination such as a mild parametritis or endometritis, and such an explanation, in all probability, applies to the case in question.

USE OF BENEDICT'S SOLUTION FOR DETERMINATION OF SUGAR IN URINE

To the Editor:—In our laboratory we have been using Benedict's qualitative solution for the routine testing of urines for sugar, purchased in 500 cc. quantities from the LaMotte Chemical Company. In view of the fact that with approximately 0.5 cc.—from 8 to 10 drops—of the urine I obtained what one might call false positives in almost every urine tested, I sent to the Arthur H. Thomas Company and purchased volumetric pipets calibrated to expel exactly 0.5 cc. when emptied by blowing. Thereafter I had my technician measure exactly 5 cc. of Benedict's solution into a pyrex test tube, following which exactly 0.5 cc. of the urine to be tested was blown from the volumetric pipet into this tube containing the LaMotte Company's Benedict's qualitative solution. Even though we have just recently purchased another batch of 500 cc., 95 per cent of the urines tested will turn faintly grass green, and there will settle at the bottom, after cooling spontaneously at room temperature, a grayish, flocculent precipitate, seemingly enmeshing a small amount of a yellowish, powdery precipitate, causing the tip or the bottom of the test tube when looked at from the bottom after the sediment has settled to give somewhat the appearance of a small quantity of reduced copper. When shaken again the precipitate disseminates itself throughout the rather bluish, nonreduced copper solution and loses the reduced copper precipitate look and assumes more the appearance of a flocculent, heavy, grayish precipitate. The remainder of the solution then assumes once more somewhat of a grass green hue. It is needless for me to enter a long rehash as to the various constituents in the urine that give precipitates of various types that are not truly due to the presence of dextrose. There is a desirable aspect to having a solution that is sufficiently delicate for clinical purposes which gives a sharp, clear cut end point in negative specimens. I mean by this urines that are negative having the solution remain clear and brilliantly blue as it should be after the test has been properly carried out. I wrote asking why I should obtain such an overwhelming number of specimens difficult to interpret—in fact, 95 per cent. I am wondering what your chemists think of such substances and from whom it might be possible to obtain a Benedict's solution more prone to give a sharp, clear cut end point reaction rather than such an overwhelming number of questionable tests. This has become such a source of exasperation that I am looking for a means of escape. M.D., Indiana.

ANSWER.—The qualitative test of the urine for sugar is best performed with Benedict's solution by means of the following technic:

1. Add 0.25 cc. (five drops, not more) of urine to 5 cc. of Benedict's solution in a test tube (about 1 inch in a test tube three-fourths inch in diameter). Shake the test tube to mix the solutions.

2. Heat for one or two minutes over a Bunsen burner or place in boiling water for five minutes.

3. Allow to stand before examining.

No reduction leaves the solution the usual transparent blue and indicates that sugar is not present in pathologic quantities. A translucent greenish blue flocculation settling as a grayish precipitate will appear when the urine is very concentrated, with a high specific gravity. This gray precipitate is due to urates and not to sugar. It may also occur when an excess of urine is added, which is a frequent technical error. If albumin is present in large amounts it may interfere with the precipitation of copper and should be removed by acidifying with acetic acid, boiling and filtering.

Reduction shows opacity with a yellow or red precipitate. The amount of sediment depends on the percentage of sugar present. A green turbidity with slight yellow precipitate at the bottom indicates from 0.1 to 2 per cent sugar. A yellow or red precipitate that settles, leaving a clear fluid, indicates over 3 per cent of sugar. A flocculent precipitate that does not settle rapidly is due to other substances than sugar.

Any laboratory can prepare its own Benedict's solution according to the following formula:

Benedict's Copper Sulfate Solution

Copper sulfate (pure crystallized)	17.3 Gm.
Sodium citrate	173.0 Gm.
Sodium carbonate (crystallized) (or 100 Gm. of anhydrous sodium carbonate)	200.0 Gm.
Distilled water to make	1,000.0 cc.

Dissolve the copper sulfate in 100 cc. of distilled water with the aid of heat. Dissolve the sodium citrate and carbonate in 700 cc. of distilled water, heating if necessary. Then pour in the copper sulfate solution, rinsing the container twice with about 25 cc. of distilled water. When cool, dilute to 1,000 cc. with distilled water.

CONGENITAL PULMONARY STENOSIS

To the Editor:—A boy, aged 7½ years, weighing 61 pounds (27 Kg.) and standing 51¼ inches (130 cm.) tall, has been affected with cyanosis, shortness of breath, weakness and a constant tired feeling on exertion since birth. The cyanosis is most pronounced in the lips, fingers and toes. Physical examination is essentially negative, without abnormalities except for an enlarged heart downward and to the left. The point of maximum intensity is located in the seventh interspace, one-half inch to the left of the anterior axillary line. The transverse diameter of the heart at the apex is 6½ inches, the transverse diameter of the heart at the base 4 inches. There is a systolic murmur, heard over the entire heart but more pronounced at the pulmonic area. Functionally the heart shows good compensation, the only impairment being marked cyanosis and weakness on exertion. There is no pain over the heart, discomfort occurring only on exertion. There is no edema of the extremities. The second pulmonic sound is weakened and there is a slight systolic thrill present. The right side of the heart is enlarged. A diagnosis of congenital stenosis of the pulmonary valves of the heart has been made. Kindly state method of treatment and prognosis. Can anything be done to remedy this condition? The tonsils and adenoids were removed at 1 year of age. No childhood diseases have occurred except measles. The health is good. He is a very active child. M.D., New Jersey.

ANSWER.—The boy is undoubtedly suffering with congenital heart disease, and the signs and symptoms as given all point to a diagnosis of congenital pulmonary stenosis. In general the clinical diagnosis of the exact lesion in any given case of congenital heart disease may be extremely difficult, and many astute clinicians will commit themselves only to a presumptive diagnosis of the exact nature of the lesion. Experience at the necropsy table corroborates the fact that the signs and symptoms of congenital heart disease may often prove misleading. Nevertheless, the prognosis in any given case will naturally depend on the nature and extent of the organic lesion. Granted that in this case the condition is a pulmonary stenosis, it would be extremely helpful to know whether the stenosis is uncomplicated or is combined with a patent foramen ovale or with an intraventricular septum defect, or whether the stenosis is accompanied by a patent ductus arteriosus. It has been said that, if the pulmonary second sound is feeble, the stenosis is uncomplicated or associated only with a patent foramen ovale. If the second sound is normal or slightly accentuated, the stenosis is said to be associated with a septum defect, and, if the second sound is greatly accentuated, the stenosis is said to be associated with a patent ductus arteriosus.

According to Maude Abbott, the prognosis, as far as duration of life is concerned, is highest for those patients in whom the pulmonary stenosis is uncomplicated by other lesions. In a number of cases analyzed by this author, twice as many individuals lived over twenty years in whom the pulmonary stenosis was accompanied by a closed ventricular septum as did those in whom the stenosis was accompanied by a patent septum defect. In general, it may be said that in patients with congenital heart disease there is a tendency to develop pulmonary complications. These patients are said to be liable to tuberculosis, especially in the adolescent years. Pertussis is poorly withstood, although the acute exanthems are generally fairly well borne. A superimposed bacterial endocarditis is said to be of high incidence in these patients. In general it may be said that the prognosis is unfavorable in proportion to the degree of cyanosis, dyspnea and palpitation.

The treatment of congenital heart disease can be only symptomatic and should include attention to the state of nutrition, precaution against overexertion, and general hygienic management. In advanced cases subject to intense cyanosis and cardiac pain, morphine or glyceryl trinitrate may be needed. Inhalation of oxygen has been used to relieve dyspnea. In attacks of syncope, camphor or caffeine hypodermically may be needed. There is no known remedy for congenital pulmonary stenosis.

HEART SENSITIVITY TO TOBACCO

To the Editor:—Until recently I had been smoking for twenty-five years. Lately, however, a few puffs on a cigaret greatly accelerate my pulse rate, probably to 140 a minute, along with a great deal of bodily uneasiness; I may say, terror. I have a chronic mitral stenosis with some enlargement of the heart to the right, but the lesion seems to be well compensated. I am 43 years of age. Several weeks ago, after my usual day and night of smoking, my heart action became extremely rapid and irregular. There was some doubt whether there was auricular fibrillation. After I discontinued tobacco for a few days my usual pulse rate dropped from 90 or more to normal, or less. Today I tried to smoke a denicotinized ("Sano") cigaret, manufactured by Health Cigars Co., Inc., New York. When the usual tachycardia began I desisted. Skips and extrasystoles are my usual fare. Is it possible that the 1 per cent or less of nicotine in the aforementioned denicotinized cigarets is sufficient to irritate my already nervous or irritable or "tobacco heart"? The thought is suggested that tobacco may contain some noxious principle or property besides nicotine. Surely my imagination would not speed up my heart after smoking the denicotinized cigars. Is there any way of combating this cardiac sensitivity to tobacco? Are bromides in order three or four times a day? I dislike intensely having to give up tobacco. I may add that the mitral stenosis with cardiac (right-hearted) enlargement has been proved by percussion, auscultation, the fluoroscope and the electric cardiograph. I have had about twenty years of uninterrupted, strenuous work with scarcely a day of rest or recreation. But what of tobacco?

M.D., Alabama.

ANSWER.—Although considerable research work has been done on the subject, the possible toxic effects of various components of tobacco and tobacco smoke have not been definitely established, with the exception of the effects of nicotine. There are considerable data to show that tobacco smoking does have an immediate stimulating effect on the sympathetic nervous system, as does nicotine, but this varies greatly with different individuals. Also, certain sympathetic nerves may give, selectively, a much greater response than others; for example, the vasomotor nerves, the gastric secretory nerves, or the accelerator nerves of the heart. Opinion is divergent regarding any other direct effect on the heart or on the coronary circulation. Analysis has shown that the so-called denicotinized "Sano" cigarets contain at least a third as much nicotine as ordinary cigarets, which contain only from 2 to 2.25 per cent, so that if an individual's sympathetic nerves are easily affected by nicotine the "less than 1 per cent" might be sufficient to produce a response.

A reasonable hypothesis in the case in question is that, in the presence of mitral stenosis of some years' duration, the threshold of irritability of the myocardium has finally become lowered to the point at which stimulation of the accelerator nerves by the regular dose of nicotine finally produces an abnormal response. Digitalis, quinidine, barbiturates and bromides could be tried one at a time in an effort to reduce both the myocardial and the sympathetic irritability, but the simplest and possibly the only effective procedure will be complete abstinence from tobacco.

COLLOIDAL SULFUR IN ARTHRITIS

To the Editor:—I am much interested in colloidal sulfur therapy for arthritis and neuritis. What do you think of it? Where can I secure literature on sulfur treatments? What firms make colloidal sulfur? I have been told that the sulfur content of the system can be determined only by the cystine content from the nails. Can you give me the laboratory technic and method of determining the cystine content of the nails? I am a sufferer from neuritis.

M.D., Ohio.

ANSWER.—Intravenous or intramuscular injection of colloidal sulfur has been used for some years in the treatment of chronic arthritis. Its employment has some enthusiastic advocates (Woldenberg, S. C.: *M. Rec.* **139**:161 [Feb. 21] 1934. Wheeldon, T. F.: *J. Bone & Joint Surg.* **15**:94 [Jan.] 1933). The toxicity of such colloidal sulfur depends largely on its dispersion and the speed of intravenous injection. The greater the dispersion, the greater the toxicity and the smaller the dose required. There is a distinct risk of anaphylactoid or colloidal shock (Hanzlik, P. J., and Karsner, H. T.: *J. Pharmacol. & Exper. Therap.* **23**:173 [April] 1924). The pharmacologic action of colloidal sulfur apparently is dependent on the formation of sulfur compounds with hydrogen, the halogens and organic matter. Sulfur is also catalytic and tends to accelerate oxidation. There is some indirect evidence that sulfur increases the catabolism of proteins in the body. The effectiveness of colloidal sulfur in arthritis is probably more logically attributed to changes in certain ill defined metabolic processes than to any direct local effect on the inflamed tissues. Frequently there is a transient exacerbation of the swelling of the affected joints, which in some cases may be followed by improvement.

The technic for the determination of the cystine content of the nails was reported by M. X. Sullivan in Public Health Supplement 86 in 1930. The procedure is complex and requires considerable special equipment. Arthritic patients are frequently deficient in sulfur, according to Woldenberg.

HYPERSENSITIVITY TO TRICHOPHYTIN

To the Editor:—A man, aged 52, with a generalized urticaria of five months' duration, has been referred to me for sensitization tests. Associated with this condition there is present a fairly marked trichophytosis of both feet. Cutaneous and intracutaneous skin tests to about 200 varied extracts have been essentially negative with the exception of a marked (+++) reaction to trichophytin. Is it possible that desensitization to this may relieve his urticaria or is this perhaps incidental? Please advise also as to whether any known cases of urticaria with trichophytin allergy as an etiologic factor have been previously reported.

MAX EHRLICH, M.D., Elizabeth, N. J.

ANSWER.—Dermatophytosis of the feet is so common in adults in the United States that it is quite possible that there may be no relationship between the fungous infection and the urticaria. However, cases of asthma, vasomotor rhinitis and urticarial hypersensitivity to trichophytin have been described, and specific reagins (Prausnitz-Kuestner antibodies) to trichophytin have been demonstrated in these patients.

If the patient's positive reaction to trichophytin is of the urticarial type (that is, if it manifests itself in a wheal and flare reaching its maximum at about twenty to thirty minutes after intracutaneous injection) it is likely to be of more significance in this case than if the usual forty-eight hour papular so-called tuberculin type reaction is meant. The latter type of reaction is the usual one to be found in persons who have, or have had, infections with fungi of the trichophyton group.

If the urticaria persists in spite of all classic therapy (Fantus, Bernard: Therapy of the Cook County Hospital: Urticaria and Angioneurotic Edema, THE JOURNAL, Aug. 24, 1935, p. 595) and if the patient presents the urticarial type of reaction to the trichophytin skin test, careful desensitization with trichophytin is worthy of trial. The physician must exercise maximum precautions to avoid systemic reactions, beginning with very small doses. The injections should be given at intervals of three or four days, intracutaneously, in ascending doses.

It would seem advisable to test this patient with oidiomycin as well, and in case of an urticarial reaction to this fungus group, combined desensitization with dermatomycin may be tried.

Additional references:

Sulzberger, M. B., and Wise, Fred: Ringworm and Trichophytin, THE JOURNAL, Nov. 19, 1932, p. 1759.

Kerr, Phyllis S.; Pascher, Frances, and Sulzberger, M. B.: Monilia and Trichophyton Extracts, *J. Allergy* **5**: 288 (March) 1934.

BLOCKAGE OF SALIVARY DUCTS

To the Editor.—At present I have under my care two patients suffering from partial blockage—in one case of the duct of the parotid gland and in the other of the duct of the submaxillary gland. As a result of this blockage the glands will increase in size to two or three times their normal size, and then the blockage seems to be overcome by the increased pressure and the swelling subsides with the discharge of large quantities of salivary material. Would you kindly outline the treatment for these conditions? I think the blockage is due to salivary concretion in the ducts.

M.D., Ontario.

ANSWER.—A good x-ray film of both the parotid gland and its duct and the submaxillary gland and its duct is the most definite and accurate method of determining salivary calculi. In the case of the submaxillary salivary gland, a large intra-oral film should be placed over the teeth in the lower jaw, touching the occlusal surfaces on both sides, and the tube should be directed from below. This will give a clear view of the gland and its duct without any bony interference. In securing a film of the parotid gland, the film should be placed on the buccal surface of the teeth and placed as far back as possible, and in like manner the field will be roentgenographed without any bony interference. It is sometimes helpful to place a small flexible silver probe in the parotid duct before the film is made. This will indicate the portion of the duct that is free, and if there is a stone it should be located at or beyond the end of

the probe. From the description it would seem that there must be some physical interference with the flow of saliva, and this in most cases is a salivary stone. Usually a stone in the submaxillary duct is easily removed from inside the mouth; but, if the stone is located in the gland, the gland will have to be removed.

ALOPECIA DURING PREGNANCY

To the Editor:—I have a patient, aged 35, who is now two months pregnant. She has had four previous pregnancies, three of which terminated in normal deliveries. The children are now 8, 7 and 4 years of age, respectively. The third pregnancy resulted in a miscarriage at three months due to overwork. This happened five and one-half years ago. During the fourth month of the fourth pregnancy the patient, within one week's time, lost all the hair from all parts of her body, scalp, eyebrows, eyelashes, axillary and pubic areas. This happened approximately four and one-half years ago. About two years ago the hair began to reappear and now is almost normal in its texture, length and distribution. The humiliation of the loss of hair caused the patient to remain almost a recluse in her home for about three years. She is now an extremely nervous type of individual, weighing 110 pounds (49.9 Kg.) with no apparent organic lesions. Financial difficulties have prevented such laboratory procedures as determination of the basal metabolism rate and x-ray therapy of the skull. What would be the possibilities of the etiology of the loss of hair during pregnancy four and one-half years ago? This was during the last pregnancy. Is this liable to happen with the present pregnancy? Taking all factors under consideration, could one consider this an indication for therapeutic abortion? Please omit name and address. M.D., Kentucky.

ANSWER.—The rare occurrence of loss of all the hair during pregnancy is difficult to explain. It has been a general belief that during pregnancy there is an increase in the growth of hair on the body. More recent and better controlled experiments, however, have shown that there is no more rapid growth of hair during pregnancy than in the nonpregnant state. There may be a pituitary factor involved in the present case, but this cannot be proved. It is likewise impossible to say whether or not there will be a recurrence in the present pregnancy. In view of the mental upheaval caused by the loss of hair and the length of time it took for the hair to return there is some justification for interrupting pregnancy at the present time. Regardless of whether or not the gestation is terminated, the patient should be instructed in one or more reliable methods of contraception.

APPLICATION OF X-RAYS IN CANCER OF BREAST AND TO OVARIES

To the Editor:—Recently I removed a growth or tumor from a woman's breast, the size of a chicken egg. The pathologist reported a highly malignant scirrhous carcinoma. The woman, aged 40, had had the tumor about seven months. The radiologist advised several high voltage treatments following the surgical removal of the tumor. These were given but made the patient quite ill the following day, with an upset stomach and pain in the breast. It has been suggested to me to administer high voltage roentgen therapy to the ovaries to bring on the menopause and thus put the affected breast at rest. Do you consider the latter procedure necessary or advisable? The patient dreads further roentgen treatments because of the unpleasant after-effects. M.D., Illinois.

ANSWER.—Roentgen therapy of the breasts and adjacent tissues is almost imperative if one hopes to obtain a permanent cure of a cancer after simple excision without radical removal of the breast. Nausea and local discomfort incident to such roentgen therapy are sometimes distressing, but these symptoms soon disappear and should be endured.

Roentgen therapy to the ovaries has no place in cases of cancer of the breast. It is true that the artificial menopause, just as the natural menopause, is followed by atrophy of the breasts; but cases in which it is permissible to resort to radiotherapy to produce menopausal atrophy of the ovaries for the purpose of inducing shrinkage of the breasts must be rare indeed.

NAIL BITING IN CHILDREN

To the Editor:—I have been asked by several mothers as to the proper treatment for nail biting in children under 4 years of age. Some of these children tolerate and even appear to relish several of the more common bitter preparations that are painted on the skin. Can you advise me of some effective agent? M.D., Illinois.

ANSWER.—Nail biting in children should be looked on as a nervous habit due to fatigue caused by excessive physical exercise, by increased mental exertion at home or at school, by insufficient sleep and rest, or not infrequently by a nagging environment. Some children acquire the habit by imitation, while others develop it on account of a hereditary neuropathic constitution. In a state of physical or nervous exhaustion a variety of nervous symptoms may occur: one child sucks his thumb, another bites his nails, while still another masturbates.

The treatment by applying bitter substances to the fingers or the use of splints or appliances is of no avail. It is equally useless to scold or shame the child. It is a better plan to attempt to improve the general hygiene of these children, to correct the overstimulating attentions of parents and friends, and to provide for sufficient sleep and rest, as well as to prohibit the reading of exciting bedtime stories. The child should be allowed to indulge only in so much physical and mental exertion as to avoid fatigue. Most of these children will recover from the habit if these general matters are attended to and if the attitude toward them is one of disregard and unconcern.

NERVOUS SENSATIONS IN LEGS IN ANEMIA

To the Editor:—Have you any suggestions that might be of value in so-called nervous feet? A man suffering from easily controlled pernicious anemia has had nervous sensations in the back of the thighs down the calves for many nights so that he cannot sleep. Heat and cold are apparently of no avail, and frequently he finds it necessary to resort to phenobarbital. M.D., California.

ANSWER.—Besides intensive antianemia therapy (liver, liver extract or desiccated hog stomach) certain physical therapeutic measures, such as active and passive exercise of the legs and back and massage of the legs and back may be tried daily. Mild counterirritants (e. g., alcohol or 1 per cent menthol in alcohol) may be rubbed on the skin of the lumbar region and the legs at bed time. A pad (a folded towel, for instance) placed so as to support the lumbar curve while the patient lies in bed may be used. If the patient is ambulatory, attention should be given to the arches of his feet, efficient supports being used if necessary. Phenobarbital or acetylsalicylic acid is necessary in some patients. The urine should be studied repeatedly for evidence of retention or of cystitis. The group of symptoms may resist treatment and occasionally, although rarely, may be the precursor of progressive spastic contraction of the legs. It should be remembered, however, that this condition may be present in other diseases than true pernicious anemia.

TREATMENT OF SYPHILIS WITH HEART DISEASE

To the Editor:—Would it be advisable to treat a patient, aged 19, who has secondary syphilis, mitral stenosis with regurgitation and moderate cardiac hypertrophy with neoarsphenamine and a bismuth compound or just continuous treatment with the bismuth compound alone? Please omit name. M.D., Montana.

ANSWER.—It is improbable that the heart is involved this early. If the correspondent is certain that it is not, there is no reason why he should not go ahead with the routine treatment. Treatment should be continuous until there is a negative Wassermann and Kahn reaction, and the patient should be kept under observation always, with repeated blood examinations. When there is any possibility of cardiac or vascular involvement, it is probably better to use the heavy metals for several months before using the arsenicals. Occasionally, when the heart or the aorta is definitely involved, the patient may be worse, even with arsenic or a bismuth compound. This occurs only rarely. If the pulse rate increases under treatment or other cardiac symptoms appear, treatment should be discontinued temporarily. The heart condition must always be kept in mind first, and treatment of syphilis is secondary. There is no rule, and it is a matter of judgment in each individual case.

INOCULATION OF DOGS AGAINST DISTEMPER

To the Editor:—Will you be willing to give the scientific background of inoculating young dogs against distemper? Are the benefits from inoculation fully accepted? PERCY T. WATSON, M.D., Northfield, Minn.

ANSWER.—Carré of Alfort (Etude sur la maladie des jeunes chiens, *Rev. gén. de méd. vét.*, March 1905, vol. 5, No. 54) and later Lignières (Sur le maladie des chiens et le microbe filtrant de Carré, *Bull. Soc. cent. de méd. vét.*, Nov. 30, 1906) demonstrated by limited but convincing experiments that canine distemper was caused by a filtered virus. These were confirmed by Laidlaw and Dunkin, whose extensive researches were conducted under most exactingly controlled conditions (the Field Distemper Council Report for June 1925; Studies in Dog Distemper, *J. Comp. Path. & Therap.* **39**, part 3 [Sept.] 1926; The Prevention of Distemper, *Fields*, Nov. 29, 1928).

Although biologic preparations for canine distemper were available in this country as early as 1913-1914, these early products were prepared from bacteria that are now known to be but secondary invaders following the infection with the primary causative agent, the filtrable virus.

Biologic products prepared from the true causative agent, the filtrable virus, appeared following the investigations of Lock-

hart, Ray and Barbee (*J. Am. Vet. M. A.* **77**, August 1925). The high degree of perfection attained in canine distemper biologicals of today, however, resulted from the researches of Laidlaw and Dunkin, which extended over a number of years. Canine distemper vaccine and anticanine distemper serum prepared according to the principles laid down by Laidlaw and Dunkin are approved by the Bureau of Animal Husbandry for preparation under U. S. veterinary licenses.

REMEDY FOR SERUM SICKNESS

To the Editor:—Please give me the latest recognized treatment for serum sickness. I have tried everything new that comes out in medical literature but I have not yet been able to give these patients the prompt relief they demand. Please omit name.

M.D., Louisiana.

ANSWER.—Epinephrine solution 1:1,000 in doses of 0.1 to 0.2 cc. injected intramuscularly usually gives prompt but temporary relief. The dose may be repeated as often as required. Magnesium sulfate in full doses several times daily, enough to produce diarrhea, is the remedy of second choice. The systemic treatment may be combined with the local therapy of urticaria. If the eruption is quite generalized, a warm bath prepared by dissolving a cup of sodium bicarbonate in the bath water is likely to be helpful. Following the bath the skin should be dried completely and dusted freely with talcum powder, to which 0.25 per cent of menthol might be added. For an eruption of more limited extent, calamine lotion with 1 per cent of phenol is likely to be satisfactory. As a systemic analgesic, acetylsalicylic acid in 0.3 Gm. doses taken every two to four hours may be of advantage, if the itching is severe.

DETECTION OF HISTAMINE

To the Editor:—Will you tell me whether there is a practical test for histamine in the secretions (chemical)? If so, where can I get the technic, or can you send it to me?

M.D., Chicago.

ANSWER.—A simple chemical method for the detection or determination of histamine in tissues and secretions has not been described. Histamine can be detected by means of various modifications of the Pauly diazo reaction. One of the simplest procedures is that of the late Gebauer-Fuelnegg as described by R. G. MacGregor and W. E. Thorpe (*Biochem. J.* **27**:1394, 1934). One cc. of the solution to be tested is mixed with 1 cc. of 0.5 normal sodium carbonate and to this is added 2 cc. of a fresh diazo reagent, made by mixing equal volumes of 0.125 per cent *p*-nitraniline in 0.1 normal hydrochloric acid and 0.37 per cent sodium nitrite. If histamine is present a reddish yellow color forms, reaches maximum intensity in one minute, and then fades and becomes cloudy. If a quantitative estimation is desired the color may be compared with permanent standards in a colorimeter and the maximum value recorded. As little as 0.01 mg. of histamine may be determined in this way. Unfortunately, the test is given by histidine, tyrosine and other compounds. Proteins and ammonium salts also interfere. The removal of interfering substances is a time-consuming procedure, and considerable skill is required to avoid loss of histamine. The isolation and determination of histamine in feces and in cecal contents has been described by M. T. Hanke and K. K. Koessler (*J. Biol. Chem.* **59**:879 [April] 1924).

Somewhat less complicated methods have been developed, particularly by Best and his collaborators at the University of Toronto. Thus, MacGregor and Thorpe describe the isolation of histamine by electrodialysis. With simplified extraction procedures, however, the colorimetric determination does not appear to yield accurate results and the histamine is best determined by physiologic assay. This can be done by comparing the fall in blood pressure of an etherized cat with the drop produced by a known amount of histamine. The effect of other depressor substances in the extract is allowed for by testing the material again after treatment to inactivate the histamine.

ACIDITY OF TOBACCO SMOKING

To the Editor:—Will you please let me know whether there is any basis for the claim that the actual difference in acidity from various cigarets is of any significance and whether acidity—or difference in acidity—has any effect on the smokers.

M.D., New York.

ANSWER.—There seems to be no evidence that the acidity of tobacco smoke is of the slightest importance in relationship to the health of the smoker or to irritation of his throat by the tobacco.

Moreover, there seems to be no evidence that the difference in acidity between the several leading brands of cigarets is any greater than the difference in acidity between varying specimens of the same brand.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ARIZONA: *Basic Science.* Tucson, March 17. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson. *Medical.* Phoenix, April 7-8. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: *Reciprocity.* Los Angeles, March 18. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, April 7. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Endorsement.* Hartford, March 24. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

HAWAII: Honolulu, April 13-16. Sec., Dr. James A. Morgan, 48 Alexander Young Bldg., Honolulu.

IDAHO: Boise, April 7. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 205 State House, Boise.

ILLINOIS: Chicago, April 7-9. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

IOWA. *Basic Science.* Des Moines, April 14. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

MINNESOTA: *Basic Science.* Minneapolis, April 7-8. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, April 21-23. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MONTANA: Helena, April 7. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEW MEXICO: Santa Fe, April 13-14. Sec., Dr. E. LeGrand Ward, Santa Fe.

OREGON: *Basic Science.* Portland, March 21. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: Providence, April 2-3. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

WEST VIRGINIA: Charleston, March 16. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

WISCONSIN: *Basic Science.* Madison, April 4. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS. *Parts I and II.* May 6-8, June 22-24, and Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: *Oral examination for Group A and B applicants* will be held in Kansas City, Mo., May 11-12. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination and review of case histories of Group B applicants will be held in various cities of the United States and Canada, March 28. Oral, clinical and pathological examination of all candidates will be held in Kansas City, Mo., May 11-12. *Applications for the May examination must be received not later than April 1.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Kansas City, Mo., May 11 and New York, Sept. 26. *All applications and case reports must be filed sixty days before date of examination.* Asst. Sec., Dr. Thomas D. Allen, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Kansas City, Mo., May 11. *Applications should be filed with the secretary on or before April 1.* Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Kansas City, Mo., May 9. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Kansas City, Mo., May 9. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: St. Louis, Mo., May 8-9. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Kansas City, Mo., May 8-10. Sec., Dr. B. R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: Kansas City, Mo., May 8-10. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Iowa Reciprocity and Endorsement Report

Mr. H. W. Grefe, director, Division of Licensure and Registration, reports 20 physicians licensed by reciprocity and 3 physicians licensed by endorsement from Aug. 14 through Dec. 14, 1935. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Loyola University School of Medicine		(1935, 2)	Illinois
Rush Medical College		(1932)	Illinois
University of Illinois College of Medicine		(1926), (1934) (1935)	Illinois, Michigan
University of Kansas School of Medicine		(1933)	Kansas
University of Maryland School of Medicine and College of Physicians and Surgeons		(1929)	N. Carolina
University of Michigan Medical School		(1930), (1933)	Michigan
University of Minnesota Medical School		(1925), (1927)	Minnesota
Washington University School of Medicine		(1930)	Louisiana
Creighton University School of Medicine		(1932) (1925), (1933), (1934)	New Jersey, Nebraska
University of Nebraska College of Medicine		(1930)	Nebraska
University of Tennessee College of Medicine		(1934)	Tennessee
University of Wisconsin Medical School		(1933)	Wisconsin

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Stanford University School of Medicine		(1935)	N. B. M. Ex.
University of Minnesota Medical School		(1931)	N. B. M. Ex.
Creighton University School of Medicine		(1934)	N. B. M. Ex.

Illinois October Examinations

Mr. Homer J. Byrd, superintendent of registration, Illinois Department of Registration and Education, reports the written and practical examination held in Chicago, Oct. 22-24, 1935. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Seventy-four candidates were examined, 69 of whom passed and 5 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine		(1933)	86
Chicago Medical School		(1935)	75, 78, 81, 81, 81, 82, 82, 82, 82, 82, 83,* 83, 84, 84, 84, 85
Loyola University School of Medicine		(1935)	78, 82, 82, 83, 84, 85
Northwestern University Medical School		(1935)	84, 85,* 85, 86, 87, 87, 88, 89, 91
Rush Medical College		(1935)	84, 85,* 85, 86, 86, 86, 87, 87, 87, 87, 87
School of Medicine of the Division of the Biological Sciences		(1934) 84, (1935) 85, 85, 86, 87, 88	
University of Illinois College of Medicine		(1934) (1935) 81,* 81, 82, 82, 84, 84, 84, 84, 84, 85, 87, 87, 87, 87, 89	88,
Johns Hopkins University School of Medicine		(1932)	85
Creighton University School of Medicine		(1933)	81
Temple University School of Medicine		(1934)	81
University of Pennsylvania Department of Medicine		(1904)	81

School	FAILED	Year Grad.
Yale University School of Medicine		(1932)
Chicago Medical School		(1935)
Northwestern University Medical School		(1935)
Rush Medical College		(1935)
University of Toronto Faculty of Medicine		(1934)

Thirty-one physicians were successful in the practical examination for reciprocity and endorsement applicants held in Chicago, October 24. The following schools were represented:

School	PASSED	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1933)*	Arkansas
College of Medical Evangelists		(1934)	Ohio
College of Physicians and Surgeons, Chicago		(1912)*	Wyoming
Northwestern University Medical School		(1927)	Indiana
Rush Medical Colege		(1916)* Iowa, (1934)	California
University of Illinois College of Medicine		(1934), (1935)	California
State University of Iowa College of Medicine		(1931), (1934)	Iowa
Indiana University School of Medicine		(1934)	Indiana
University of Louisville Medical Department		(1920)*	Kentucky
Johns Hopkins University School of Medicine		(1929)	Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons		(1932)	Maryland
Harvard University Medical School		(1934)	Maine
University of Michigan Medical School		(1929)	Michigan
University of Minnesota Medical School		(1927) Minn., (1929)	Michigan
University of Nebraska College of Medicine		(1931)	Nebraska
Vanderbilt University School of Medicine		(1932)	Tennessee
Queen's University Faculty of Medicine		(1923)	Minnesota
Thüringische Landesuniversitat Medizinische Fakultät, Jena		(1920)	Wisconsin
Université de Genève Faculté de Médecine		(1933)*	Missouri

School	PASSED	Year Grad.	Endorsement of
Loyola University School of Medicine		(1935)*	U. S. Navy
Northwestern University Medical School		(1934, 2)	N. B. M. Ex.
Rush Medical College		(1934), (1935)	N. B. M. Ex.
Harvard University Medical School		(1931)	N. B. M. Ex.
Tufts College Medical School		(1933)	N. B. M. Ex.
University of Michigan Medical School		(1932)	N. B. M. Ex.

* License has not been issued.

New Mexico October Report

Dr. Le Grand Ward, secretary, New Mexico Board of Medical Examiners, reports the written examination held in Santa Fe, Oct. 14-15, 1935. The examination covered 12 subjects and included 100 questions. An average of 75 per cent was required to pass. One candidate was examined and passed. Seventeen physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1932)	87.8

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Arkansas School of Medicine		(1918), (1920)	Arkansas
University of California Medical School		(1934)	California
Chicago Medical School		(1931)	Illinois
Northwestern University Medical School		(1932)	Texas
Univ. of Illinois College of Medicine		(1918) Iowa, (1933)	N. B. M. Ex.
University of Kansas School of Medicine		(1930), (1934)	Kansas
Tulane Univ. of Louisiana School of Medicine		(1931), (1933)	Louisiana
Lincoln Medical College, Nebraska		(1911)	Nebraska
Ohio State University College of Medicine		(1917)	Ohio
Vanderbilt University School of Medicine		(1907)	Colorado
Baylor University College of Medicine		(1910)	Texas
University of Texas School of Medicine		(1933), (1934)	Texas

Book Notices

Head Injuries. By L. Bathe Rawling, M.B., B.Ch., F.R.C.S., Consulting Surgeon to St. Bartholomew's Hospital, London. Cloth. Price, $2.75. Pp. 86, with 22 illustrations. New York & London: Oxford University Press, 1934.

This little book sets forth the author's impressions and opinions concerning some of the clinical phenomena observed in head trauma and the treatment of such injuries. It was written while the author was on vacation, away from all references, and is therefore "a book of personal experience, based on an interest of a lifetime in head injuries." As a result it is a short, practical elucidation of the principles governing the management of the average skull fracture case, with much of the text devoted to the operative treatment of the craniocerebral complications requiring operations. Almost all workers in this field will agree with the author's indications for operating in cases of skull fracture. Many will agree with him that there is the occasional case when an exploratory subtemporal decompression is indicated. It is noteworthy that he does not dwell on or recommend subtemporal decompression per se as a method of treatment. His chapter on subdural hemorrhage and subdural hematoma is especially good. It describes a condition more frequently overlooked, with disastrous consequences, than is usually realized. His description of the middle meningeal hemorrhage is the classic textbook picture, which is less often observed in actual practice than is the atypical middle meningeal hemorrhage. The atypical cases therefore are the ones that really should be stressed if more of these middle meningeal accidents are to be diagnosed and saved. This author advocates the use of morphine in cases of head injury, which differs widely from the views of the majority of the authors on this subject in America. He shows clearly that he does not hesitate to use this drug in cases of brain operations, whereas most of the brain surgeons in the United States are strongly opposed to its use. He mentions the fact that in his experience recovery has occurred in only one case of head injury with Cheyne-Stokes respiration. It is the belief of many that the depressing effect of morphine added to the existing respiratory depression from the brain injury is a common cause of Cheyne-Stokes respiration. Without question, the author's views on the use of morphine will not meet the approval of many of his readers. It is interesting to note that he thoroughly believes in the use of lumbar puncture as a routine procedure for diagnostic purposes in all head injuries and yet condemns it as a therapeutic measure and quotes Dandy as being in agreement with this view. Dandy of course condemns even diagnostic punctures. A survey of the opinions of ten leading neurologic surgeons in this country disclosed that eight used lumbar punctures in treatment and believed, when indicated, that this was a life-saving procedure. Further, only two favored diagnostic punctures and none were in favor of the routine use of lumbar puncture. In spite of a few controversial points, such as this, the reader will find the book an interesting and exceedingly helpful treatise on head injuries. It is not written for the brain specialist but rather for the average physician or surgeon, who is being called on to treat these serious craniocerebral injuries more and more frequently, owing to automobile casualties. To him this book has a practical message.

The Theory of Emulsions and Their Technical Treatment. By William Clayton, D.Sc., F.I.C., Chief Chemist and Bacteriologist, Messrs. Crosse and Blackwell, Ltd., London. Third edition. Cloth. Price, $8. Pp. 458, with 91 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1935.

The definition of an emulsion as a system of two liquid phases, one of which is dispersed as globules in the other, immediately suggests the wide distribution of these systems in all biologic and technologic materials. In this edition of his well known treatise on emulsions, the author has thoroughly revised the text and extended it more than 50 per cent. More than half the volume is devoted to theoretical considerations of emulsions and borderline subjects, while the remainder deals with technical applications. The field covered is so vast that even a transcript of the table of contents fails to indicate the wide range of subjects treated. The book contains thirteen chapters dealing with dilute emulsions as oil hydrosols, the air/liquid interface, adsorption at liquid/liquid interfaces, emulsifying

agents, properties of emulsions, theories of emulsions, dual emulsions and inversion of phases, emulsions in biologic investigations, miscellaneous emulsions, the preparation of emulsions—basic principles, the preparation of emulsions—technical operations, deemulsification, and physical measurements in emulsions. In the chapter on biologic emulsions the author discusses such topics as the chylomicron emulsion, the parenteral administration of emulsions, and milk. This book is recommended to all those who are interested in acquiring a well rounded knowledge of the theory and practice of emulsions. In spite of the fact that the space devoted to discussions of specific biologic investigations is necessarily limited, the volume will be found stimulating by those workers in the biologic sciences who are in a position to apply a thorough understanding of the properties of emulsions to the study of some of the fundamental problems of protoplasmic structure and behavior.

La tuberculose ostéo-articulaire: Evolution, diagnostic de début et traitement. Par Jacques Calvé. Avec la collaboration de M. Galland et M. Mozer. Bibliothèque de phtisiologie, sous la direction de Léon Bernard, professeur de clinique de la tuberculose à la Faculté de médecine de Paris. Paper. Price, 50 francs. Pp. 208, with 101 illustrations. Paris: Masson & Cie, 1935.

Calvé presents a complete description of the evolution of tuberculosis of the bones and joints, as well as the diagnosis and treatment of the disease. He calls attention to the fact that tuberculosis of the bones and joints is practically always preceded by a primary infection elsewhere in the body. On roentgen examination he often finds such foci of disease in the lungs, and on postmortem examination there is often definite evidence of disease in the lymph nodes of the hili or the mesentery. The fact that the intradermal tuberculin test is nearly always positive is emphasized. After the primary lesion is established a bacillemia occurs, at which time tubercle bacilli find lodgment in the bones and joints. After this has occurred there may be either the tendency toward destruction, resulting in ulceration and necrosis, or the tendency toward healing, resulting in a tissue reaction, which controls the disease. Considerable space is devoted to the diagnosis of tuberculosis of the various bones and joints, and emphasis is placed on making the diagnosis early. The difficulties of such diagnoses are emphasized. General methods of treatment are considered, such as heliotherapy, medication and tuberculin treatment. The author also gives in considerable detail his methods of treating various lesions surgically. The book is profusely illustrated and will serve as a fine manual not only to those especially interested in orthopedics but also to those interested in tuberculosis in general.

Growing Superior Children. By I. Newton Kugelmass, M.D., Ph.D., Sc.D., Attending Pediatrician of the Broad Street Hospital, French Hospital, and Heckscher Institute, New York. Cloth. Price, $3.50. Pp. 568, with illustrations. New York & London: D. Appleton-Century Company, Inc., 1935.

The purpose of this book is to explain to parents how superior results can be obtained in the rearing of children. The individuality of the child and the necessity for individualization in care are emphasized. For the author the "average" child is nonexistent; the tempo of the child's development can "be modified in the direction of more wholesome development," and by superior care from birth "early developments can be accelerated two or three years." The book is divided into four sections dealing respectively with the new-born, the period of infancy, childhood and adolescence. In each of these sections the physical traits, the course of physical development, the nutritional needs, the prevention of physical and psychologic disturbances and the training in the intellectual, emotional and social spheres are dealt with. The author is quite specific in his discussion of the physical development and growth of the infant and young child and their nutritional needs. Feeding schedules for infants, balanced diets for older children, a special diet for constipation and similar explicit aids to parents are included. Habit training, descriptions of normal course of mental development and the cultivation of emotional stability are given much attention. The problems of the period of adolescence, physical, emotional and social, are given rather full treatment. Many schedules, tables and illustrations enrich the book. The author is to be commended strongly for his effort to present a conception of the child as a developing organism in an environment that strongly influences the development. He views the child as a totality rather than from the too restricted point of view that characterizes many medical approaches to the child's problems. Physical, intellectual, emotional and social aspects of the child's developmental needs are properly related in this presentation.

Certain shortcomings must be noted. At times, rather dogmatic statements that might not bear the cold scrutiny of the author's own critical regard are made, particularly in sections dealing with the emotional life of the child. Some of these statements must of course be attributed to the author's effort to couch his work in terms understandable to parents; but in this field he is not always accurate and not always understandable; viz., "The mental make-up of the child is predestined at conception" (p. 404). "Emotion constitutes the child's psychic life" (p. 414). "The more the spring of action is transferred from the emotion itself to the condition that produces it, the better adjusted is the individual" (p. 414). And if one is to trouble to mention and define the Oedipus complex for parents, the definition should be a correct one. That given on page 542 is incorrect. While the author's whole point of view, in discussion of the mental and emotional life of the child, is an admirable one and his advice sound, this aspect of the book is less authoritatively treated than are the problems of physical growth and development. The division into age groups has resulted in some degree of repetition.

Die Fermente und ihre Wirkungen. Von Prof. Carl Oppenheimer, Dr. phil. et med. Supplement. Lieferung 2 (Bd. 1: Specieller Teil: Hauptteil VIII). Paper. Price, $6.80. Pp. 161-320, with 13 illustrations. The Hague: W. Junk, 1935.

The four volumes of the fifth edition of this monumental work were completed in 1929. The new supplement when completed will add two volumes to cover the recent knowledge to the "special part" of the original work; that is, the general field of enzyme research without special reference to methods and technology. The first two issues of the supplement under consideration here cover the esterases and carbohydrases up to heterosides. The same high standards of organization, presentation and completeness are maintained in the new edition that characterized the older editions. In the general discussion on enzyme character are given the views of Willstädter to the effect that the enzyme activity may reside in a unit, the "agon," which may or may not be firmly combined with a colloidal complex, the "pheron." The combinations of "agon" and "pheron," called the "simplex," then represent various enzyme combinations with specific activities and various dissociation constants. The discussion on esterases is unusually complete and especially welcome because the great amount of new work on phosphatases is now put together for the first time in an excellent review. In the discussion on the carbohydrases naturally much emphasis is placed on the quantitative and qualitative actions as related to the structure of the substrate. The work continues to be a master reference work for the specialist as well as for the general biologist.

Diseases of Women. By Harry Sturgeon Crossen, M.C., F.A.C.S., Gynecologist to the Barnes Hospital, St. Louis Maternity Hospital, and St. Luke's Hospital, and Robert James Crossen, M.D., Instructor in Clinical Gynecology and Obstetrics, Washington University School of Medicine. Eighth edition. Cloth. Price, $10. Pp. 999, with 1,058 illustrations. St. Louis: C. V. Mosby Company, 1935.

For many years this has been a standard textbook for students because it presents the elements of gynecologic examination and diagnosis in a simple and orderly manner. The present edition, which has been reset as well as revised, has been much improved by the addition of a compact section on gynecologic pathology. This chapter, consisting of 148 pages with 184 illustrations, furnishes the student with an excellent outline of all important infectious and neoplastic diseases of the female genitalia from the pathologist's point of view. The new volume is instructively and profusely illustrated and, in spite of the fact that many of the original photomicrographs have not reproduced well, gives the student an adequate idea of the clinical and histologic appearance of most gynecologic lesions. Newer concepts of the rôle of hormones in gynecologic physiology, pathology and therapy have been presented with proper conservatism. Since few debatable points have been considered,

the reader may be assured of the soundness and maturity of opinions expressed. The writing is clear and makes fairly smooth reading. There are few repetitions. The publishers, as might be expected, have done excellent work. Adverse criticism of a work of such venerable worth is unnecessary. The splendid earlier editions (the first was copyrighted in 1907) have been frequently and faithfully revised. However, the plan of the work remains the same. The emphasis is on morphology and pathology rather than on physiology. The style is that of anatomy books, admirable for the beginner but a little tedious for the graduate. There is lack of emphasis on common diseases, and lack of detailed information on uncommon diseases. The general practitioner searching for details of treatment will be disappointed, as will the gynecologist requiring opinions on technical problems such as presacral sympathectomy and radium dosages. Some of the older chapters are verbose, and the newer ones sketchy. Space has been saved by omitting references. Little use is made of the valuable gynecologic statistics that have been accumulated in the last twenty years. One cannot but regret that authors with such experience and knowledge have not produced an entirely new book presenting the same material in a more modern manner. Nevertheless, medical students and those who have used previous editions will find the new volume of great value.

Mikroskopische Methoden in der Mikrochemie. Von Dr. phil et. med. Ludwig Kofler, o. ö. Professor und Vorstand des pharmakognostischen Instituts der Universität Innsbruck, und Dr. phil. et. med. Adelheid Kofler. Unter Mitarbeit von Dr. phil. Adolf Mayrhofer, a. o. Professor für Pharmakognosie an der Universität Wien. Monographien aus dem Gesamtgebiete der Mikrochemie. Paper. Price, 9 marks. Pp. 134, with 87 illustrations. Vienna & Liepzig: Emil Haim & Co., 1936.

The isolation, in recent years, of minute amounts of substances of profound biologic importance has created a need for various types of microchemical methods. The present monograph, one of a series of monographs on microchemical methods, describes several such methods performed with the aid of the microscope. The first section, by Dr. Ludwig Kofler, describes a reliable method for determining the melting point of less than a millionth of a gram of material. The second section, by the same author, deals with microsublimation and describes the preparation of crystals suitable for determinations of melting points and optical properties by subliming minute amounts of material on a microscopic slide. In both sections the author stresses the fact that these microscopic methods yield information which the macro methods are incapable of giving. In a third section Dr. Adelheid Kofler discusses some optical properties of crystals and describes some simple measurements of crystals, using both ordinary and polarized light. These measurements are of great value in the identification of compounds and may be carried out by workers unfamiliar with the highly specialized technic of crystal measurement. There is also an appendix, by Dr. Adolf Mayrhofer, on the use of various dispersion mediums in determinations of refractive indexes of crystals. This little monograph will be found interesting and useful not only by those workers who wish to extend their microchemical technic but also by those readers who are seeking a simple discussion of the optical properties of crystals.

Prescription Writing and Formulary: The Art of Prescribing. By Charles Solomon, M.D., Assistant Clinical Professor of Medicine, Long Island College of Medicine. With a foreword by Lewellys F. Barker, M.D. Cloth. Price, $4. Pp. 351, with 32 illustrations. Philadelphia, London & Montreal: J. B. Lippincott Company, 1935.

The knowledge and skill requisite to prescription writing is an important part of any physician's preparation for the practice of medicine. Individualization of treatment can be practiced only by those familiar with it. There will always be a field for books which add to the clarity of this subject. The author of this book has prepared a treatise that should fulfil the needs of many practicing physicians. The book is simple and written in a well organized and lucid manner. The data are in accord with accepted medical practice and therapeutics. The author stresses the most fundamental aspects of both the science and the art of prescribing. The book is unusually complete for its size and bears the mark of careful editing. Much useless material ordinarily found in books of this type has been omitted, and only pertinent scientific and practical facts have been included. The formulary is refreshing in its simplicity, avoidance of polypharmacy, and preference of official (U. S. P. and N. F.) preparations. When, in the few cases, unofficial preparations are cited, only those accepted by the Council on Pharmacy and Chemistry are given. The medical student and young practitioner of medicine will particularly welcome this book, but any one charged with the responsibility of writing an intelligent prescription can glean much from reading it.

Destiny and Disease in Mental Disorders, with Special Reference to the Schizophrenic Psychoses. By C. Macfie Campbell, Professor of Psychiatry, Harvard University. Cloth. Price, $2. Pp. 207. New York: W. W. Norton & Company, Inc., 1935.

Professor Campbell has for long been a brilliant figure in American psychiatry. His clinical acumen and sound conservatism have made him a stanch figure in this country in the field of mental disorders. The present volume incorporates the Thomas W. Salmon memorial lectures and they reflect the best modern psychologic approach in the field of psychiatry. The book divides itself into two portions, one in which the theoretical trends are adequately discussed and in the other of which general trends are illustrated by specific case abstracts. Both sections are written in a style that makes them available for reading by the lay person as well as the interested physician. The general trend of the volume can best be demonstrated by quoting the following passage verbatim:

> The study of these serious cases is the study of the tragi-comedy called life, and each individual case has its own unique character. No general formula can do full justice to the particular circumstances of the individual case. General formulae are dignified and diagnostic terms give comfort, but they are verbal symbols which are apt to do violence to the complexity of the facts. Out of respect for the facts we may be shy of certain diagnostic terms, even though we thereby deprive ourselves of a pleasing resting place. Whoever fails to use the familial verbal symbols may be accused of diagnostic nihilism or of lack of pious recognition of the labors of his predecessors, who with unremitting toil constructed their orderly schemata. One may seem to be a disturber of the peace if one reject familiar diagnostic terms, and if one insist that more important than the formal diagnosis of the case is its formulation in terms of the familiar forces of human life, based on the painstaking dynamic analysis of the patient and his relation to the environment. With such an outlook the neglect of conventional diagnostic terms may lead to some complaint from our professional colleagues, but our patients at least will not be able to reproach us with having failed to do our best to understand the travail of their spirit, their needs, and their goals, and to bring whatever relief is available to strengthen their bodies, reestablish their personal equilibrium, restore them to their place in the social group.

It is this point of view that makes Campbell's work so worth while and his relation with younger psychiatrists of such great importance for the future of this very dark field.

The Pathogenic Aerobic Organisms of the Actinomyces Group. By Dagny Erikson. Medical Research Council, Special Report Series, No. 203. Paper. Price, 1s. Pp. 61, with 11 illustrations. London: His Majesty's Stationery Office, 1935.

This little monograph is the result of a study of a collection of micro-organisms belonging to the Actinomyces, Streptothrix or Nocardia group obtained from the National Collection of Type Cultures maintained by the Medical Research Council at the Lister Institute. Miss Erikson has made a systematic study of these micro-organisms and has attempted to classify them. Twenty-five species, including fifteen that appear to be entirely new, are identified and described. Eleven plates aid in the description of the morphologic features. This work will be of particular interest to bacteriologists and pathologists who are concerned with the relationships of this group of organisms.

Fundamentals of Biochemistry in Relation to Human Physiology. By T. R. Parsons, B.Sc., M.A., Sidney Sussex College, Cambridge. Fifth edition. Cloth. Price, $3. Pp. 453, with 26 illustrations. Baltimore: William Wood & Company; Cambridge: W. Heffer & Sons, Ltd., 1935.

The new edition of this excellent and well written elementary textbook is as welcome as were its predecessors. The changes from the last edition are not striking. Most of the nineteen chapters are essentially the same as in the previous edition. The new features are (*a*) the addition of methionine as one of the amino acids, (*b*) new factors in the oxidation of fats, (*c*) more material on the sterols and related substances, (*d*) a revised discussion of the chemistry of muscle activity, and (*e*) brief references to flavines and to carbaminohemoglobin combinations. As in the previous edition, the author again refers to sodium as the buffer in the red corpuscles. Also no reference is made to the various types of vitamin D known to exist.

Fasciae of the Human Body and Their Relations to the Organs They Envelop. By Edward Singer, M.D., Department of Anatomy, College of Physicians and Surgeons, Columbia University. Cloth. Price, $3. Pp. 105, with 24 illustrations by Elizabeth B. Cuzzort. Baltimore: Williams & Wilkins Company, 1935.

Fifteen of the illustrations show fascial layers as dissected out from parts of cadavers by the author, prepared by a special method of his own, the nature of which he does not divulge. These drawings constitute a real contribution to anatomic illustration. In addition, there are two diagrams and seven illustrations of sections through various parts of the body. There is also a brief text covering forty pages of description, which corresponds fairly well with descriptions of fascias in the standard textbooks of anatomy. The nomenclature throughout is in the Latin form. There are a few mistakes in the Latin form, in the English, and in the application of anatomic terms, which will doubtless be corrected in later editions. The illustrations are beautifully reproduced and the form of the book is attractive.

Die Seelenstörungen der Blutdruckkranken. Beiträge zur psychiatrischen Alterspathologie und zu einer "Psychiatrie auf pathophysiologischer Grundlage." Von Dr. E. Krapf. Paper. Price, 6 marks. Pp. 120. Leipzig and Vienna: Franz Deuticke, 1936.

This booklet comprises a thorough study of mental disturbances found in hypertensive disease. The author working on the large material of the clinic of Munich ably presents his subject in the form of a classification of mental diseases well illustrated by numerous case histories. Almost all forms of psychoses are represented. Although a satisfactory explanation for the outbreak of psychoses in hypertensive disease is missing, the author stresses the importance of organic cerebral changes, such as cerebral edema, arteriosclerosis and circulatory disturbances. The book may well be recommended to both the psychiatrist and the internist in dealing with this serious complication of hypertensive disease.

What Everyone Should Know About Venereal Diseases. By E. R. Millis, M.D. Paper. Price, 25 cents. Pp. 24. Kansas City, Kansas: The Author, 1932.

This booklet is written by Dr. Millis "to give the public the true facts regarding the various venereal diseases and their complications." It does exactly that in a concise, informative way which tends neither to give moral preachment to the reader nor to reduce him to a state of hysteria. The layman who wants the facts about venereal diseases—the variety of symptoms and their treatment—will get it here without wading through a lot of irrelevant material. Of course the importance of such a pamphlet lies not only in the manner of its presentation but in the possibility of getting it circulated. There are many persons who would like to have the information in just this form, but they may never hear of Dr. Millis's booklet. The medical profession would be doing the public a great service by finding and developing new avenues of distribution for such important facts.

Oxygen and Carbon Dioxide Therapy. By Argyll Campbell, M.D., D.Sc., Member of Research Staff, National Institute for Medical Research, and E. P. Poulton, M.A., D.M., F.R.C.P., Physician to Guy's Hospital. Foreword by Sir Leonard Hill, F.R.S. Cloth. Price, $4.25. Pp. 179, with 49 illustrations. New York and London: Oxford University Press, 1934.

This is an excellent presentation of the physiologic and pathologic facts on which oxygen therapy is based, together with the clinical indications for its use. The book is particularly valuable, as it presents the experimental evidence of the value of oxygen therapy in considerable detail, especially the experiments of Campbell, which definitely show, even under normal conditions, an increase in the oxygen tension of the tissues from the inhalation of oxygen. It is a valuable reference book for every one interested in oxygen therapy.

Essentials of Cardiography. By H. B. Russell, M.D., M.R.C.P., Medical Officer in Charge of the Cardiographic Departments at St. Thomas's and the Royal Masonic Hospitals, London. Cloth. Pp. 82, with 73 illustrations. London: J. & A. Churchill, Ltd., 1936.

This is another short compend on the interpretation of electrocardiograms, of which there has recently been a plethora. The assumption is fallacious that there is a short cut to learning the interpretation of the electrocardiogram. However, a booklet such as this might serve the student, as the author points out, as a guide for further study. The author is perhaps too ambitious in attempting to cover so much material in so short a space. He presents a number of electrocardiograms and reproductions of orthodiagrams, and he points out the significance of each type. Many of the electrocardiograms, unfortunately, are distorted by extracardiac oscillations. The book is undoubtedly valuable as a brief compend for the medical student trying to review for examination purposes the subjects covered.

The Biochemistry of the Lipids. By Henry B. Bull, Assistant Professor of Biochemistry, University of Minnesota, Minneapolis. Fabrikoid. Price, $3.25. Pp. 127, with illustrations. Minneapolis: Burgess Publishing Company, 1935.

This monograph contains a mass of factual material presented in a not too readable style, with numerous tables and graphs. Much of the material is valuable but frequently other statements are either entirely too brief or the facts are not sufficiently well established to warrant referring to. It would have been far more satisfactory to restrict the monograph to the descriptive chemistry and the synthesis, digestion, metabolism and functions of the lipins than to include brief and worthless descriptions of analytic methods. The text contains many typographic errors.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Alleged Negligence in Treatment of Wound.—A bottle that the plaintiff was capping broke, June 4, 1931, and pieces of glass entered his right hand at or near the base of the thumb. One piece was promptly pulled out, and the plaintiff, while awaiting the arrival of a physician, immersed his hand in water containing "sylpho napthol." The physician, the defendant in this case, probed the wound but found no foreign substance in it. He examined the thumb and index finger to ascertain whether "tendons or anything" had been cut, and although the plaintiff was not able to move his thumb, the defendant assured him that as long as he could move his index finger there was nothing in the hand and everything was all right. The defendant bandaged the wound temporarily and that night he put in three metal clips and dressed the wound with a salve. He continued in attendance, prescribing the application of hot water and of a solution of epsom salt in water and ordering a bottle of liquid for sleeping purposes. He continued to assure the patient and the patient's wife that the wound was "not infectious at all, absolutely good," as late as June 10, when the hand had swelled to more than half again its normal size, the swelling extended up the arm to the neck, and the hand was discolored, numb, and stiff.

On June 10, however, another physician was summoned. He found the patient in a septic condition, "inoculated him," and ordered applications of steam towels and an electric pad. The discoloration gradually disappeared, the swelling diminished, the pain decreased, and the patient improved generally. About June 22, the second physician procured a roentgenogram of the injured hand. This showed a small piece of glass in the wound, and the patient was then referred to a specialist. The specialist found the tendon cut and the nerve badly severed. An operation was performed, the piece of glass was removed, and the necessary repairs were made. A second operation was performed later, because of the shortening of the tendon. The patient sued the physician who first attended him, but apparently he offered no direct medical testimony to show that the defendent did not exercise proper care and skill. The trial court directed a verdict for the defendant, and the patient appealed to the Supreme Judicial Court of Massachusetts.

The duty of the physician-defendant to his patient, the plaintiff, said the Supreme Judicial Court, was to use the care and skill of the ordinary practitioner in the community in which he practiced. Only in exceptional cases may a jury determine, without the aid of expert medical opinion, whether the conduct of a physician toward his patient violates that duty. Four medical experts agreed that, after an injury of the type here

involved, it would be highly probable that the original wound by glass would cause infection. There was no evidence that the probe used by the defendant was not sterile, or, if it was not, that it caused or contributed to the infection. Since there was no medical evidence to show that the infection followed from any cause other than the wound itself, the jury could not infer that it resulted from the use of infected appliances.

The plaintiff insisted, however, that the jury could have found that the defendant knew or should have known of the probability of infection resulting from the wound and that the jury could readily infer that he did not give the plaintiff proper treatment and attention at a time when, from a layman's point of view, the patient was growing worse. But, said the Supreme Judicial Court, the uncontradicted medical testimony was to the effect that the general treatment of the plaintiff by the defendant was in accord with accepted practice. Moreover, the jury could not have determined by the exercise of common knowledge whether it was or was not proper medical practice to go into the wound to mend the severed tendon or nerve during the period of infection, or, more specifically, while the physician-defendant was attending the plaintiff, and there was medical testimony to the effect that it would have been improper to operate until after the danger of infection had passed.

A consideration of all the testimony, said the court, disclosed no negligent medical treatment by the defendant. The trial court correctly directed a verdict in his favor. The verdict in favor of the physician-defendant was therefore allowed to stand. —*Bouffard v. Canby (Mass.), 198 N. E. 253.*

Accident Insurance: Septicemia Following Trauma.—The plaintiff sued as beneficiary on a policy of insurance that provided for the payment of certain benefits if her husband's death should result from septic infection of and through a visible wound caused directly and independently of all other causes by violent and accidental means. Judgment was given for the plaintiff. The defendant insurance company appealed to the Supreme Court of Vermont.

It was agreed that the insured had died of septic infection. The evidence, construed most favorably for the plaintiff, was as follows: As the insured was chopping kindling wood, a stick flew up, and it "looked as though it hit him in the face." A clean cloth which the insured held over the junction of his lip and nose became spotted with blood. Four days later there was swelling and pain in the area over which the insured had held the cloth, and on the following day a physician found an abrasion at the junction of the mucous membrane of the nose with the lip, containing a drop or two of pus. The entire face of the insured soon became discolored and swollen. He died of septicemia on the twelfth day after the accident.

Expert testimony was introduced to prove that the infection in this case was of the type that is introduced into the body only through a break in the skin and that it was extremely probable that it had been introduced by and through the abrasion at the nose. The insurer, however, introduced evidence to prove that the infection might have been caused by a boil that the insured had had in his nose eight weeks prior to the accident. The jury was justified, the court thought, in finding from the evidence presented that the impact of the stick had caused an abrasion and that the septic infection was "of and through a visible wound," as required by the policy as a condition precedent to payment. The question presented, however, said the court, is whether the injury was caused by violent and accidental means.

That the injury was caused by violent means was not disputed. The insurer contended, however, that although the injury might be called accidental, yet the means was not accidental; the chopping of the wood was voluntary and intentional, and there was nothing to show that it was not performed exactly as intended, with no slip or mishap. After an elaborate discussion of cited cases, the court concluded that the term "accidental means" should be interpreted according to the usage of the average man. It should be understood as being employed in its common significance of happening unexpectedly, without intention or design. If the insurer intended the terms "accident" and "accidental means" to be construed as differing in their meanings, the contract of insurance should give the insured warning of that fact. The meaning of the term "accidental means," the court recognized, is dependent for its application on the particular facts presented; what might be the unusual, unexpected and unforeseen results under some circumstances might not be such under other circumstances. In this case, the flying up of the stick and its impact on the insured's face was plainly unforeseen and unintended and not a probable consequence of his act. It was an accident, and hence the injury was caused by accidental means. Probably, said the court, all accidental happenings can be traced through the sequence of events back to some voluntary act, but that fact does not attach the voluntary quality of the original act to every subsequent occurrence to which it gives rise.

Judgment for the plaintiff was affirmed.—*Griswold v. Metropolitan Life Ins. Co. (Vt.), 180 A. 649.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, Apr. 21-23. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association for Thoracic Surgery, Rochester, Minn., May 4-6. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Association of Anatomists, Durham, N. C., Apr. 9-11. Dr. George W. Corner, 260 Crittenden Boulevard, Rochester, N. Y., Secretary.

American Association of Pathologists and Bacteriologists, Boston, Apr. 9-10. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Association on Mental Deficiency, St. Louis, May 1-4. Dr. Groves B. Smith, Beverly Farms, Godfrey, Ill., Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., May 4-5. Dr. Russell S. Boles, 1901 Walnut Street, Philadelphia, Secretary.

American Physiological Society, Washington, D. C., Mar. 25-28. Dr. A. C. Ivy, 303 East Chicago Avenue, Chicago, Secretary.

American Psychiatric Association, St. Louis, May 4-8. Dr. William C. Sandy, State Education Building, Harrisburg, Pa., Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 4. Dr. J. M. Hayman Jr., Lakeside Hospital, Cleveland, Secretary.

American Society for Experimental Pathology, Washington, D. C., Mar. 25-28. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Washington, D. C., Mar. 25-28. Dr. E. M. K. Geiling, 710 North Washington Street, Baltimore, Secretary.

American Society of Biological Chemistry, Washington, D. C., Mar. 25-28. Dr. H. A. Matill, Chemistry Bldg., State University of Iowa, Iowa City, Secretary.

American Surgical Association, Chicago, May 7-9. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.

American Therapeutic Society, Kansas City, Mo., May 8-9. Dr. Oscar B. Hunter, 1835 Eye St. N. W., Washington, D. C.

Arizona State Medical Association, Nogales, Apr. 23-25. Dr. D. F. Harbridge, 15 East Monroe Street, Phoenix, Secretary.

Arkansas Medical Society, Hot Springs National Park, Apr. 27-29. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, N. J., May 5-6. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

District of Columbia, Medical Society of the, Washington, D. C., May 6. Dr. C. B. Conklin, 1718 M St. N. W., Washington, D. C., Secretary.

Federation of American Societies for Experimental Biology, Washington, D. C., Mar. 25-28. Dr. E. M. K. Geiling, 710 North Washington Street, Baltimore, Secretary.

Florida Medical Association, S. S. *Florida*, Apr. 27-29. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Savannah, Apr. 21-24. Dr. Edgar D. Shanks, 478 Peachtree Street N.E., Atlanta, Secretary.

Iowa State Medical Society, Des Moines, Apr. 29-May 1. Dr. Robert L. Parker, 3510 Sixth Ave., Des Moines, Secretary.

Louisiana State Medical Society, Lake Charles, Apr. 27-29. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 28-29. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.

Minnesota State Medical Association, Rochester, May 3-6. Dr. E. A. Meyerding, 11 West Summit Ave., St. Paul, Secretary.

Mississippi State Medical Association, Greenville, May 5-7. Dr. T. M. Dye, McWilliams Building, Clarksdale, Secretary.

Missouri State Medical Association, Columbia, Apr. 13-15. Dr. E. J. Goodwin, 634 North Grand Blvd., St. Louis, Secretary.

National Tuberculosis Association, New Orleans, Apr. 22-25. Dr. Charles J. Hatfield, 7th and Lombard streets, Philadelphia, Secretary.

Nebraska State Medical Association, Lincoln, Apr. 7-9. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.

New Mexico Medical Society, Carlsbad, May 6-8. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, New York, Apr. 27-29. Dr. Daniel S. Dougherty, 2 East 103d St., New York, Secretary.

North Carolina, Medical Society of the State of, Asheville, May 4-6. Dr. L. B. McBrayer, Southern Pines, Secretary.

Oklahoma State Medical Association, Enid, Apr. 6-8. Dr. L. S. Willour, 203 Ainsworth Building, McAlester, Secretary.

South Carolina Medical Association, Greenville, Apr. 21-23. Dr. E. A. Hines, Seneca, Secretary.

South Dakota State Medical Association, Sioux Falls, May 4-6. Dr. John F. D. Cook, Langford, Secretary.

Tennessee State Medical Association, Memphis, Apr. 14-16. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1926 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

11: 1-128 (Jan.) 1936

*Cold Pressor Test for Measuring Reactibility of Blood Pressure: Data Concerning Five Hundred and Seventy-One Normal and Hypertensive Subjects. E. A. Hines Jr. and G. E. Brown, Rochester, Minn.—p. 1.

Psychoanalytic Observations in Cardiac Disorders. K. A. Menninger and W. C. Menninger, Topeka, Kan.—p. 10.

Incidence of Blood Vessels in Human Heart Valves. J. T. Wearn, A. W. Bromer and Louise J. Zschiesche, Cleveland.—p. 22.

Notes on Cardiac Pain and Coronary Disease: Correlation of Observations Made During Life with Structural Changes Found at Necropsy in Four Hundred and Seventy-Six Cases. H. G. Bruenn, K. B. Turner and R. L. Levy, New York.—p. 34.

Electrocardiograms Derived from Eleven Fetuses Through Medium of Direct Leads. J. D. Heard, G. G. Burkley and C. R. Schaefer, Pittsburgh.—p. 41.

Study of Lead IV of Electrocardiogram in Children, with Especial Reference to Direction of Excursion of T Wave. H. Rosenblum and J. J. Sampson, San Francisco.—p. 49.

Pharmacologic and Therapeutic Effects of Certain Choline Compounds: Results in Treatment of Hypertension, Arthritis, Organic Occlusive Vascular Disease, Raynaud's Disease, Scleroderma and Varicose Ulcers. J. Kovacs, L. L. Saylor and I. S. Wright, New York.—p. 53.

Arteriolar Hypertension in the American Negro. V. E. Schulze, San Angelo, Texas, and E. H. Schwab, Galveston, Texas.—p. 66.

Clinical Results from Oral Administration of Thevetin, Cardiac Glucoside. W. S. Middleton, Madison, Wis., and K. K. Chen, Indianapolis.—p. 75.

Functional Bundle-Branch Block. C.-L. Tung, Peiping, China.—p. 89.

*Heart Failure in Hypertension. S. H. Averbuck, New York.—p. 99.

Cold Pressor Test for Measuring Reactibility of Blood Pressure.—Hines and Brown observed that the response in blood pressure to a standard stimulation (ice water at 4 C.) is fairly constant for the normal person. The authors submit the conception that essential hypertension affects only subjects who are hyperreactors. A group of healthy subjects in the later decades of life have been found who have hyperreactions and changes in the retinal arterioles which are indicative of essential hypertension but who have normal or subnormal levels of blood pressure. Normal reactions obtain in aged arteriosclerotic persons whose retinal arterioles do not show changes of hypertension. Subjects with hypertension and arteriosclerosis show hyperreactions. The systolic forms of hypertension seen in neurocirculatory asthenia with tachycardia, in glomerular nephritis and in hyperthyroidism give responses definitely less than do the preexistent and existent stages of essential hypertension, unless the two conditions coexist. The authors believe that the abnormality of essential hypertension is an excessive response in the blood pressure to intrinsic and extrinsic stimulation. This abnormality is a hereditary one, which appears early in life and remains during life. When the level of the blood pressure is elevated and clinical degrees of hypertension exist, the reactions then increase with increasing severity of the hypertension. This hyperreactive vasomotor mechanism may be an important factor in the production of arteriolar hypertrophy and in the subsequent development of the organic stages of the disease.

Heart Failure in Hypertension.—To investigate the cause of heart failure in hypertension, Averbuck studied the hearts of forty hypertensive patients who died with symptoms of myocardial insufficiency. As a control group thirty hearts from patients with hypertension who died of cerebral accidents, renal insufficiency or incidental disease were likewise studied. Thirty-four (85 per cent) of the patients in the cardiac group had significant involvement of the coronary artery (sclerosis or thrombosis), whereas only three (10 per cent) of the subjects in the control group had significant disease of the coronary artery. The myocardial changes in both groups reflected roughly the extent and degree of involvement of the coronary artery. In six (15 per cent) of the forty cardiac cases there was not sufficient organic change in the coronary arteries or myocardium to account for the heart failure. Three of these six patients had marked pulmonary complications. Theories seeking to explain the cause of the heart failure in the remaining three cases are reviewed.

American Journal of Anatomy, Philadelphia

58: 1-258 (Jan. 15) 1936

Effect of Hysterectomy on Duration of Life and Retrogression of Corpora Lutea and on Secondary Sex Organs in Rabbit. L. Loeb and Margaret G. Smith, St. Louis.—p. 1.

Developmental Capacities of Transplanted Hepatic, Pancreatic and Lung Tissues of Rabbit Embryo. A. J. Waterman, Pittsfield, Mass.—p. 27.

Lung of Human Fetus of One Hundred and Seventy Millimeters Crown-Rump Length. D. M. Palmer, Columbus, Ohio.—p. 59.

Lips of the New-Born Infant, with Reference to Labial Zone Termed Pars Villosa. R. C. Wherry and B. J. Anson, Chicago.—p. 73.

Bilateral Symmetry as Seen in Ossification. J. W. Pryor, Louisville, Ky.—p. 87.

Changes with Age in Cardiac and Body Weights of Wire-Haired Fox Terriers. A. E. Cohn and J. M. Steele, New York.—p. 103.

Formation and Development of Blood Vessels in Sensitized Cornea. L. A. Julianelle and G. H. Bishop, St. Louis.—p. 109.

Studies on Articular Cartilage: I. Growth Mechanisms. H. C. Elliott, Toronto.—p. 127.

Histologic Study of Transplanted Sympathetic Ganglions. J. W. Ward, Nashville, Tenn.—p. 147.

Recovery in Rats on Refeeding After Prolonged Suppression of Growth by Dietary Deficiency of Protein. C. M. Jackson, Minneapolis.—p. 179.

Sexual Differences of Hypophyses and Their Determination by Gonads. C. A. Pfeiffer, Iowa City.—p. 195.

Structure and Mode of Innervation of Capillary Blood Vessels. T. Jones, Liverpool, England.—p. 227.

American Journal of Cancer, New York

26: 1-258 (Jan.) 1936

Idiopathic Multiple Hemorrhagic Sarcoma (Kaposi). G. M. MacKee and A. C. Cipollaro, New York.—p. 1.

Growth of Rous Sarcoma Inoculated into the Brain. E. Vázquez-López, Madrid, Spain.—p. 29.

*Relation Between Incidence of Mammary Cancer and Nature of Sexual Cycle in Various Strains of Mice. E. L. Burns, Marian Moskop, V. Suntzeff and L. Loeb, St. Louis.—p. 56.

Experimental Production of Teratoma Testis in the Fowl. H. J. Bagg, New York.—p. 69.

Genetic Aspects of Mouse Leukemia. E. C. MacDowell, Cold Spring Harbor, N. Y.—p. 85.

Effect of Prolan on Transplantable Mouse Sarcoma. R. C. Tanzer, Cooperstown, N. Y.—p. 102.

Effect of Hypophysectomy on Metabolism of Grafted Tumor Tissue. C. C. Franseen and Claire McTiernan, Boston.—p. 106.

Dibenzanthracene Tumors in Controlled Strains of Mice. C. F. Branch, Boston.—p. 110.

Effect of Anemia-Producing Diet on Growth of Carcinoma, Sarcoma and Melanoma in Animals. K. Sugiura and S. R. Benedict, New York.—p. 115.

*Clinical Manifestations and Treatment of Leukemia. L. F. Craver, New York.—p. 124.

Primary Carcinoma of Lung Occurring in Apex: Report of One Case. G. E. Marcil and B. L. Crawford, Philadelphia.—p. 137.

Interstitial Cell Tumor of Testis with Hypergenitalism in a Child of Five Years. C. A. Stewart, E. T. Bell and A. B. Roehlke, Minneapolis.—p. 144.

Liposarcoma of Kidney. J. S. McCartney and H. M. N. Wynne, Minneapolis.—p. 151.

Primary Tumors of Cranial Bones. C. F. Geschickter, Baltimore.—p. 155.

Simple Experimental Cancer Research. M. C. Marsh, Buffalo.—p. 181.

Mammary Cancer and Nature of Sexual Cycle in Mice.—Burns and his associates compared the following characteristics of the sexual cycle in female mice of ten inbred strains which differed greatly in their incidence of mammary cancer: (1) the duration of estrus (period of keratinization in vaginal epithelium) in the individual mice, (2) the average duration of estrus in the various strains, (3) the total number of days of keratinization during a given period in individual mice of each strain and the averages for the various strains, (4) the average number of estrous cycles in each strain, and (5) the normality or regularity of the estrous cycles in the strains and in the individual mice comprising them. The characteristics of the sexual cycle of different strains of mice differ greatly. These differences seem to be constant, within a certain range, in a given strain, as indicated by the concordant results of two series of experiments carried out at different times; however, this holds good only with the restriction that the same individual mice were tested in the successive experiments. Although in

certain cases considerable variations exist, the characteristics of the sexual cycle of individual mice, on the whole, tend to remain constant. There is no noticeable parallelism between any of these features of the sexual cycle and the frequency with which cancer appears in these strains. It may be concluded, therefore, that the hereditary tendency to acquire cancer, which is characteristic of strains of inbred mice, is not due essentially to the nature of the sexual cycle which distinguishes these strains from each other. Diet exerts some influence on the character of the sexual cycle. In general, the estrous periods were more normal in those experiments in which chow alone was fed than when a mixed diet consisting of chow, corn and oats was given.

The Course and Treatment of Leukemia. — Craver devotes his discussion to a report of selected cases illustrating different aspects of the course and treatment of leukemia. One remarkable feature of leukemia is the great variation in duration of its course. It may be a fulminating catastrophe or an extremely prolonged, relatively benign affliction. Occasionally myelocytic leukemia will run a course of ten years or longer, but a long course seems somewhat more common in lymphocytic leukemia. Case reports descriptive of inadequacy of early biopsies for the prediction of the clinical course, borderline cases, lymphocytic leukemia in young patients, leukemic tumors in adults, leukosarcoma and erythroleukemia are given, and treatment by generalized irradiation is discussed. The aspects of the subject brought into question by the cases reported are: the great variations in duration and severity of symptoms; suggestions of relationships between certain leukemias and other diseases, such as Hodgkin's disease, lymphosarcoma and erythremia; differentiation from leukemoid states.

American Journal of Clinical Pathology, Baltimore

6: 1-98 (Jan.) 1936

Peripheral Neurogenic Tumor. N. C. Foot, New York.—p. 1.
Determination of Blood Cholesterol: I. Comparison of Standard Colorimetric Methods and Modified Method with Gravimetric Determination of Digitonin Precipitates. J. G. Reinhold, with assistance of Ethel M. Shiels, Philadelphia.—p. 22.
Id.: II. Factors Influencing Accuracy of Various Methods. J. G. Reinhold, Philadelphia.—p. 31.
Further Studies in Experimental Granulopenia, with Particular Reference to Sulfhydryl (Glutathione) Metabolism in Blood Dyscrasias. F. P. Parker and R. R. Kracke, Atlanta, Ga.—p. 41.
Blood Phosphatase: Its Clinical Significance. A. Yaguda, with technical assistance of P. C. Brown, Newark, N. J.—p. 57.
Size Distribution of Lymphocytes in Human Blood Films. D. Mainland, B. K. Coady and W. Horowitz, Halifax, N. S.—p. 66.
*Bilirubin Concentrations in Human Gallbladder. N. W. Elton, Reading, Pa.—p. 81.

Bilirubin Concentrations in Gallbladder.—Elton observed that the bilirubin contents of fifteen selected gallbladders removed surgically and exhibiting minimal pathologic changes (eleven anatomically normal) ranged from 6.2 to 1,000 mg. per hundred cubic centimeters. All concentrations below 50 mg. per hundred cubic centimeters were found in the four specimens showing definite chronic inflammatory reactions and are not acceptable as satisfactory minimums because of possible dilution in a pathologic gallbladder. The contents of sixty apparently normal gallbladders obtained at necropsy exhibited bilirubin levels of from 3.5 to 1,786 mg. per hundred cubic centimeters, from which a concentration factor of 510 may be computed. Liver bile obtained by surgical choledochostomy in three patients with complete common duct occlusion ranged from 17 to 71.4 mg. per hundred cubic centimeters in fourteen twenty-four hour specimens. The usual bilirubin content of liver bile obtained by duodenal drainage in individuals with no known gallbladder disease is from 8 to 10 mg. per hundred cubic centimeters, with a further possible decrease to 2 mg. per hundred cubic centimeters after prolonged choleresis. The great variability in the bilirubin content of liver bile, ranging from 2 to 71.4 mg. per hundred cubic centimeters and due to the increased water output of the liver after prolonged choleresis in individuals without gallbladder dysfunction and to the inhibition of choleresis in cholecystic disease and hepatic injury, makes it difficult to select a satisfactory average minimal level in liver bile for comparison with the bilirubin contents of gallbladders. However, a concentration factor of 105 may be computed from the fact that liver bile obtained by surgical drainage contained 17 mg. per hundred cubic centimeters and that a normal gallbladder contained 1,786 mg. per hundred cubic centimeters. A factor of 125 to 100 may be computed from the observation that liver bile in the absence of cholecystic disease ranges from 8 to 10 mg. per hundred cubic centimeters and that it is not unusual for a gallbladder to contain bile of 1,000 mg. per hundred cubic centimeters. Since it is possible for a clear alkaline liver bile to have a bilirubin level as low as 2 mg. per hundred cubic centimeters, an extreme combined factor for liver and gallbladder jointly might be computed as 893. A most conservative concentration factor, attained without undue fasting, appears to be from 30 to 50.

American J. Digestive Diseases and Nutrition, Chicago

2: 651-708 (Jan.) 1936

Psychogenic Factors in Ulcerative Colitis. A. J. Sullivan, New Haven, Conn.—p. 651.
Gastroscopy with Flexible Gastroscope. R. Schindler, Chicago.—p. 656.
Bacteriologic Findings in Disease of Biliary Tract: Improved Method of Obtaining Cultures of Bile by Duodenal Drainage. J. R. Twiss and Charlotte H. Phillips, New York.—p. 663.
V. Effects of Drugs on Motility of Isolated Segments of the Intestine of Man. J. A. Bargen and J. S. Guthrie, Rochester, Minn.—p. 668.
Some Normal Variations in Emptying Time of Human Stomach (Using Carbohydrate Meal). E. J. Van Liere and C. K. Sleeth, Morgantown, W. Va.—p. 671.
Experiences with Postoperative Jejunal Ulcer and Gastrojejunocolic Fistula. F. H. Lahey, Boston.—p. 673.
Traumas Resulting from Sigmoid Manipulation. B. B. Crohn and B. D. Rosenak, New York.—p. 678.

American Journal of Hygiene, Baltimore

23: 1-204 (Jan.) 1936

Growth-Inhibitory Power of Specific Antiserums as Influenced by Carbohydrates of Pneumococci and Bacterium Lepisepticum. J. H. Dingle, Baltimore.—p. 1.
Study of Curative Action of Arsenophenylglycine in Trypanosoma Lewisi Infections in Rat. M. L. Kuhs, C. C. Pfeiffer and A. L. Tatum, Madison, Wis.—p. 10.
Human Infestation with Dwarf Tapeworm (Hymenolepis Nana) in the Southern United States. G. F. Otto, Baltimore.—p. 25.
Investigation of Hookworm Infestation in Thirty-Six Counties of Kentucky. A. E. Keller, W. S. Leathers, Nashville, Tenn., and M. H. Jensen, Sweetwater, Texas.—p. 33.
Studies on Nature of Immunity to Intestinal Helminths: III. Renewal of Growth and Egg Production in Nippostrongylus After Transfer from Immune to Nonimmune Rats. A. C. Chandler, Houston, Texas.—p. 46.
Study of Rabbit Virus III in Tissue Culture. G. Ivanovics and R. R. Hyde, Baltimore.—p. 55.
Further Studies on Relation Between Vitamin A Metabolism and Susceptibility to Bacterial Toxins. C. C. Torrance, Albany, N. Y.—p. 74.
Four Races of Retortamonas (Embadomonas) Intestinalis. M. J. Hogue, Philadelphia.—p. 80.
Methods of Testing Anthelmintic Properties of Ascaricides. P. D. Lamson and H. W. Brown, Nashville, Tenn.—p. 85.
Active Immunization of Albino Rats with Protein Fractions from Taenia Taeniaeformis and Its Larval Form Cysticercus Fasciolaris. D. H. Campbell, St. Louis and Chicago.—p. 104.
Relation of Hydrogen Ion Concentration to Growth and Encystment of Endamoeba Histolytica in Cultures. Gladys M. Craig, New York.—p. 114.
Pharmacologic Observations on 4-Carbaminophenyl-Arsonic Acid (Carbarsone) in Rats. A. Gabaldon, Baltimore.—p. 122.
Studies on Trichomonas Columbae, a Flagellate Parasitic in Pigeons and Doves. G. Cauthen, Baltimore.—p. 132.
*Influence of Odor on Appetite. C.-E. A. Winslow and L. P. Herrington, New Haven, Conn.—p. 143.
Localized Centers of Hookworm Disease in Kentucky and North Carolina. G. F. Otto, Baltimore.—p. 157.
Toxicology of Selenium: I. Study of Distribution of Selenium in Acute and Chronic Cases of Selenium Poisoning. H. C. Dudley, Baltimore.—p. 169.
Id.: II. Urinary Excretion of Selenium. H. C. Dudley, Baltimore.—p. 181.
Concentration and Standardization of Type I Antipneumococcus Serum. Mary B. Kirkbride, Jessie L. Hendry and P. P. Murdick, Albany, N. Y.—p. 187.

Influence of Odor on Appetite.—Winslow and Herrington used eight young men between 17 and 19 years of age as experimental subjects. They came to the laboratory on four or five mornings each week during the months of February, March and April 1935 and were kept under observation in one of the experimental rooms from 9:30 a. m. until 12:30 p. m. On certain days the subjects were exposed to the odor of heated house dust, while on other days no such odor was present. This odor was selected as an example of one to which exposure is common and which, although the odor is a relatively mild one, is often noted as subjectively undesirable.

The investigation shows that the odor given off from heated house dust (even when not consciously perceived) has a clearly demonstrable effect in reducing the appetite for food and hence may be considered as definitely harmful to health. From a general physiologic standpoint, the results seem to be of some importance. They furnish the most convincing evidence that has yet been offered (indeed, the only controlled objective evidence that has been offered except for the results of the New York State Commission on Ventilation) of the effect of mild organic odors on human health and comfort.

American Journal of Surgery, New York

31: 1-192 (Jan.) 1936

Surgical Repair of Cleft Palate, with Especial Reference to Lengthening Soft Palate. H. S. Vaughan, New York.—p. 5.
Recent Fractures of Nose. J. Safian and J. Tamerin, New York.—p. 10.
Surgical Prosthetics of Oral and Facial Defects. N. A. Olinger and E. F. Axt, New York.—p. 24.
Relationship Between the Otolaryngologist and the Plastic Surgeon. H. Hays, New York.—p. 38.
Burns. H. H. Ritter, New York.—p. 48.
*Contribution to Physiologic Method of Repair of Damaged Finger Tendons: Preliminary Report on Reconstruction of Destroyed Tendon Sheath. L. Mayer and N. S. Ransohoff, New York.—p. 56.
*Intradermal Test for Pregnancy. B. Gruskin, Philadelphia.—p. 59.
Head Injuries: Conservative Treatment with Low Mortality. W. T. King, Binghamton, N. Y.—p. 62.
Craniocele: Report of Two Cases Repaired by Bone Graft. W. E. Adams, Chicago.—p. 68.
Calcified Breast Tumors. J. H. Conway, New York.—p. 72.
Acute Perforated Peptic Ulcer: Review of Sixty-Three Cases. M. Corff, Philadelphia.—p. 77.
Clinical Aspects of Gastrojejunal Ulcer. F. M. Jordan, Brooklyn.—p. 83.
Lowered Death Rate for Acute Appendicitis. J. E. Loveland, Middletown, Conn.—p. 87.
*Low Reserve Kidney. C. H. Peckham and M. L. Stout, Baltimore.—p. 92.
Trichomonas Infestation of Prostate Gland. A. C. Drummond, New York.—p. 98.
Graphic Illustration of Various Forms of Incontinence. M. Muschat, Philadelphia.—p. 104.
Endometrioma on Ligamentum Rotundum Uteri. W. C. Beck, Chicago.—p. 105.
Rectal Stricture: Clinical Analysis of Fifty-Eight Cases, with Observations on One Hundred and Fifty-Four Frei-Positive Cases of Lymphogranuloma Inguinale. L. Lichtenstein, New York.—p. 111.
Benign Stricture of Rectum. G. P. Pennoyer, New York.—p. 127.
Septic Joint Disease: Report of Four Cases of Hip Joint Involvement. J. R. Regan, Milwaukee.—p. 131.
Treatment of Unimpacted Fractures of Surgical Neck of the Humerus. J. A. Caldwell and J. Smith, Cincinnati.—p. 141.
New Treatment of Acute Osteomyelitis. R. E. Humphries, East Orange, N. J.—p. 145.
Ephedrine Sulfate in Spinal Anesthesia: Administered Prior to Subdural Block. M. Weinstein and A. Barron, Long Island City, N. Y.—p. 154.

Repair of Damaged Finger Tendons.—The method of Mayer and Ransohoff for supplying a new sheath in the repair of damaged finger tendons is as follows: Pure celloidin tubes, varying in size and length to correspond with the varying sizes of the digital tendon sheaths, are prepared in advance and sterilized for twenty minutes in a 1:2,000 solution of mercuric oxycyanide. They are then placed in sterile solution of sodium chloride until ready for implantation. The operation is done in two stages: the first consists in the complete excision of the scar and the implantation of the celloidin tube; the second, performed after a lapse of from four to six weeks, in the removal of the tube and the implantation of the new tendon. In all but one of the cases, both in experimental animals and in the authors' patients, the celloidin tube healed in aseptically and at the second operation was found enveloped by a smooth glistening tissue, the surface of which microscopically and macroscopically resembled that of a normal sheath. Through this smooth-walled channel the grafted tendon could be seen gliding as the patient contracted his muscle much as the normal tendon glides through the digital theca. The normal relationship between tendon and sheath had been restored. The present technic has enabled the authors to immobilize the operated finger for from ten to fourteen days without creating vicious adhesions between the tendon and the new sheath. During this period the grafted tendon has united to the host with sufficient firmness to permit active exercises and electrical stimulation.

Intradermal Test for Pregnancy.—Gruskin bases his test on previous work concerning the nature of homologous proteins producing an allergic reaction by the formation of pseudopods when injected intradermally in positive cases of malignant manifestations. The same principle has been applied in the determination of pregnancy by the use of placental tissue as an antigen, which, when introduced intradermally, causes pseudopod formation at the site of injection in pregnant women, but no pseudopods appear when pregnancy does not exist. One-tenth cubic centimeter of the antigen is injected intradermally with a 27 gage needle and a 1 cc. tuberculin syringe. The injection should not be forced. In positive cases a slight area of inflammation with pseudopod formation appears within ten minutes. In negative cases no such reaction takes place. It is advisable to use a control of physiologic solution of sodium chloride with each test. The control must always be negative, showing no inflammation and no pseudopods. The bleb after the injection must be perfectly round and have the appearance of orange peel due to the hair follicles, in which case one is sure that the test was done intradermally. For the preparation of the antigen, placentas are obtained as soon as possible following delivery. They are washed, cleaned and freed from blood, ground into pulp and placed in acetone, three times their volume, for twenty-four hours. The acetone is poured off, the tissue allowed to dry and the acetone evaporated. It is then extracted with a tenth normal sodium hydroxide solution for twenty-four hours and neutralized with a solution of hydrochloric acid and a buffer solution made of 0.05 normal hydrochloric acid and 2.27 Gm. of potassium dihydrogen phosphate per liter. The antigen is brought to a p_H of 6.9, and 6 drops (0.4 cc.) of a mixture of two parts of glycerin to one of tricresol for every 10 cc. of the extract is added as a preservative. It is then placed in pyrex containers and is ready for use. This test should not be done during menstruation owing to the decidual involvement of that process which will respond to the homologous protein of the placental extract, giving positive reactions. It should not be performed in endocrine disturbances or on hypersensitive skins, which might respond to anything.

Low Reserve Kidney.—As the result of a five year follow-up study of a series of toxemic patients originally diagnosed as having "low reserve kidney," Peckham and Stout find it necessary to alter the concept of this condition as proposed by Stander and Peckham in 1926. It is their opinion that the condition is limited to primiparas and that it manifests itself, usually not before the last month of gestation, by the presence of a moderate degree of hypertension and a small amount of albumin in the urine. Ordinarily it clears up rapidly in the early puerperium and does not recur with subsequent pregnancies. Clinically the course is mild and does not resemble true preeclampsia.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

20: 1-114 (Jan.) 1936

Recommendations for Venereal Disease Control Program in State and Local Health Departments: Report of an Advisory Committee to the U. S. Public Health Service. R. A. Vonderlehr, Washington, D. C.; H. N. Bundesen, Chicago; J. E. Moore, Baltimore; N. A. Nelson, Boston; P. S. Pelouze, Philadelphia; W. F. Snow, New York; J. H. Stokes, Philadelphia; U. J. Wile, Ann Arbor, Mich., and Lida J. Usilton, Washington, D. C.—p. 1.
*Reaction of Connective Tissues to Lipids and Other Foreign Bodies. Edna H. Tompkins, Nashville, Tenn.—p. 22.
Gonococcus Infection of Anus and Rectum in Women: Its Importance, Frequency and Treatment: Study of Two Hundred and Fifty Cases. W. M. Brunet and J. B. Salberg, Chicago.—p. 37.
Congenital Syphilis in Children: Results of Treatment in Five Hundred and Twenty-One Patients: Part II. F. R. Smith Jr., Baltimore.—p. 45.
*Rôle of Acute Gonorrheal Urethritis in Masking Lesions of Early Syphilis. J. E. Kemp and C. Shaw, Chicago.—p. 56.
Syphilis of Spinal Cord. N. W. Winkelman, Philadelphia.—p. 62.

20: 1-180 (Jan. Supplement) 1936

Report of the Committee for Survey of Research on Gonococcus and Gonococcic Infections. S. Bayne-Jones, New Haven, Conn.; E. L. Keyes, W. Clarke, New York; F. G. Blake, New Haven, Conn., and Ruth Boring Thomas, Bloomfield, N. J.—p. 9.

Reaction of Connective Tissues to Lipids.—Tompkins carried out five groups of experiments on guinea-pigs: 1. The subcutaneous tissues were studied at various intervals of time following single injections of a variety of unrelated foreign bodies (phosphorus in olive oil, olive oil, liquid petrolatum,

poppy-seed oil, and the like). 2. Subcutaneous injections of lecithin prepared from egg yolk were given. 3. Injections of lecithin and liquid petrolatum were given singly or mixed. 4. Also in rabbits, lipids prepared from brains were injected subcutaneously. 5. Studies were made of the peritoneal reactions in rabbits and guinea-pigs following repeated injections of some of the substances used in the first three experiments. The reaction of the connective tissues to many unrelated foreign bodies, including tubercle bacilli, is presented by the following sequence of events: 1. An early influx of polymorphonuclear cells, which subsides in a few days. 2. Appearance of monocytes about three days after the injections; these quickly develop to great size and activity. 3. Appearance of clasmatocytes about five days after the injections. 4. Appearance of epithelioid cells and of transitional forms between them and both monocytes and clasmatocytes about eight days after the injections. 5. Appearance of giant cells of both foreign body and epithelioid types about ten days after the injections. Injection of the connective tissues with lipids prepared from egg yolk and from brains causes focal increases of macrophages similar to those caused by the injection of other foreign bodies. In contrast to the degenerative changes produced in the macrophages in the latter case, however, the cells become hyperactive physiologically in the areas injected with the lipids and show no evidences of degeneration into epithelioid and giant cells. These lipids are quickly removed from the areas of injection without residual modification of the tissues.

Gonorrhea as a Mask for Early Syphilis.—Kemp and Shaw studied 1,000 cases of acute gonorrhea to determine its rôle in masking or altering the presence of primary syphilis. They found that 155 (15.5 per cent) of the group had syphilis, of whom forty-one (26.4 per cent) had early syphilis contracted simultaneously with gonorrhea. In every instance of primary syphilis the clinical diagnosis was made by detection of the chancre and in not a single instance did it depend only on the development of a positive blood Wassermann reaction. Of nineteen patients with secondary syphilis, only three were unaware of the eruption. Among the forty-nine patients with late syphilis who were unaware that they were infected, only thirteen (28.8 per cent) gave a history of a previous attack of gonorrhea. Of the sixty-one patients in whom syphilis had been diagnosed before admission, only thirteen (21.3 per cent) had received adequate treatment. Thirty-four of the 1,000 patients had genital lesions that were proved by repeated dark-field examinations and blood Wassermann follow up to be non-syphilitic. There were no instances of "symptomless infection" with syphilis occurring simultaneously with gonorrhea.

American Journal of Tropical Medicine, Baltimore

16: 1-104 (Jan.) 1936

Development of Tropical Medicine. E. B. Vedder, Washington, D. C. —p. 1.

Necessity for More Accurate Statistics Regarding Distribution and Incidence of Tropical Diseases in the United States. C. F. Craig, New Orleans.—p. 15.

Intestinal Parasite Infections of the Ambulatory White Clinic Population of New Orleans. E. C. Faust and W. H. Headlee, New Orleans.—p. 25.

Incidence of Intestinal Parasites in Five Hundred and Thirty-Seven Individuals on Relief Rolls in the City of Athens, Ga., and Vicinity. E. E. Byrd, Athens, Ga.—p. 39.

Six New Cases of Chagas' Disease in Panama: Review of Previous Cases. C. M. Johnson and G. T. DeRivas, Panama, Republic of Panama.—p. 47.

Natural Infection of Trypanosoma Hippicum Darling in the Vampire Bat Desmodus Rotundus Murinus Wagner. C. M. Johnson, Panama, Republic of Panama.—p. 59.

Transmission of Quartan Malaria Through Two Consecutive Human Anopheline Passages. M. F. Boyd and W. K. Stratman-Thomas, Tallahassee, Fla.—p. 63.

Comparative Susceptibility of Anopheles Quadrimaculatus, Say, and Anopheles Punctipennis, Say, to Plasmodium Vivax, Grassi and Feletti, and Plasmodium Falciparum, Welch. M. F. Boyd and S. F. Kitchen, Tallahassee, Fla.—p. 67.

Yellow Fever Virus Encephalitis in African and Asiatic Monkeys. W. Lloyd and A. F. Mahaffy, Lagos, Nigeria, Africa.—p. 73.

*Infectious Intertrigo. J. K. Howles, New Orleans.—p. 77.

Variation of Cosmopolitan Diseases in Tropical and Temperate Zones. A. E. Larsen, San Francisco.—p. 91.

Infectious Intertrigo.—Howles shows the protein nature of the infectious intertrigoes in his survey of 2,086 clinically and microscopically positive cases. Cocci, yeast and fungi were all proved to be etiologic factors either singly or in combination. Of the 600 cultures studied mycologically, 10 per cent were positive for pathogenic fungi. To enable a fair evaluation of the therapeutic measures employed, various remedies (keratolytic agents, mechanical abrasives, chemical abrasive agents, fungistatic and germicidal agents and physical agents were tested for adequate periods of time under controlled conditions. The rational therapy of infectious intertrigo cannot be found in one set remedy. Each stage of these eruptions must be managed differently; therefore the discovery of a panacea is improbable. Conservative treatment in the acute stages is essential. Hygienic and prophylactic measures seem to be the ultimate answer to the question.

Archives of Internal Medicine, Chicago

57: 1-240 (Jan.) 1936

Cystic Disease of Lung. H. Hennell, New York.—p. 1.

*Congenital and Familial Clubbing of Fingers and Toes, with Possibly Inherited Tendency. J. T. Witherspoon, Indianapolis.—p. 18.

*Effect of Ergotamine Tartrate on Pressure of Cerebrospinal Fluid and Blood During Migraine Headache. J. L. Pool, T. J. C. von Storch and W. G. Lennox, Boston.—p. 32.

Chemical Studies of Acute Poisoning from Mercury Bichloride. T. Sollmann and Nora E. Schreiber, Cleveland.—p. 46.

Cholesterol Content of Whole Blood in Patients with Arterial Hypertension. A. H. Elliot and F. R. Nuzum, Santa Barbara, Calif. —p. 63.

Chlorophyll and Regeneration of Blood: Effect of Administration of Chlorophyll Derivatives to Patients with Chronic Hypochromic Anemia. A. J. Patek Jr., Boston.—p. 73.

Cytologic Examination of Nasal Smears of Sensitized and Nonsensitized Persons with Nasal Symptoms, with Especial Reference to the Eosinophil Count and to Simultaneous Blood Counts. D. M. Cowie and B. Jimenez, Ann Arbor, Mich.—p. 85.

*Rheumatic Cardiac Disease: Association of Active Rheumatic Fever with Heart Failure. S. C. Werner, New York.—p. 94.

Clinical Studies of Respiration: V. Relation of Dyspnea and Air Hunger to Changes of Expiratory Volume of Chest. J. A. Greene and R. H. Heeren, Iowa City.—p. 100.

Carbohydrate Intolerence and Intestinal Flora: II. Bacteriologic Studies of Fecal Flora. J. B. Gunnison, T. L. Althausen and M. S. Marshall, San Francisco.—p. 106.

Renal Lesions in Staphylococcus Aureus Infections and Their Relation to Acute Glomerular Nephritis. R. H. Rigdon, Durham, N. C. —p. 117.

Auriculoventricular Heart Block Due to Bilateral Bundle-Branch Lesions: Review of Literature and Report of Three Cases with Detailed Histopathologic Studies. W. M. Yater, V. H. Cornell and T. Claytor, Washington, D. C.—p. 132.

*Erythrocyte Fragility in Pneumonia. R. J. Needles, Detroit.—p. 174.

Allergy: Review of Literature of 1935. F. M. Rackemann, Boston. —p. 184.

Critical Review of Literature on Chronic Rheumatism. J. L. Miller, Chicago.—p. 213.

Congenital and Familial Clubbing of Fingers.—Witherspoon points out that clubbing of the fingers and toes has been recognized as a clinical manifestation of intrathoracic disease from the earliest times. Hippocrates described the condition as occurring with advanced phthisis and empyema and emphasized the importance of the changes as diagnostic of purulent pleural effusion. Many subsequent authors have described clubbing of the fingers associated with chronic disease of the heart or lungs, but it is still rare in medical literature to find the condition mentioned as being of primary origin. The author considers his case of simple clubbing of the hands and toes apparently of primary origin. He states that it is familial, possibly hereditary, is congenital as far as can be determined from the history, and supposedly is the first instance of simple familial and congenital clubbing of the fingers and toes in a Negro to be described in medical literature.

Effect of Ergotamine Tartrate on Cerebrospinal Fluid Pressure.—Pool and his co-workers thought that a study of the physiologic effects of ergotamine on patients during a migraine headache might uncover the cause of the relief and hence suggest the cause of the migraine. With this thought in mind they have observed the effects of ergotamine tartrate on the pressure of the cerebrospinal fluid and of the arterial blood, on the rate of the heart and on the symptoms of patients who were suffering from an attack of migraine. As a control, similar observations were made on a group of patients not subject to migraine. It was found that the average initial spinal fluid pressure during headache was 113 mm., a figure 14 mm. lower than the average pressure for the control group. Following the injection of ergotamine, there was in both groups a prompt fall in pulse rate and a rise in systolic and diastolic blood pressure and in spinal fluid pressure. After injection of

ergotamine in the patients having headache, the average rise in the level of spinal fluid pressure was 13 mm.; in the controls the level rose 31 mm. The relief from headache which twelve of the fifteen patients with migraine experienced could not be directly or entirely explained by the observed changes in cerebrospinal fluid pressure or in the circulation. The observations do not lend support to the theory that in migraine headache there is a generalized spasm of cerebral vessels or an abnormality of intracranial pressure. It is possible that ergotamine acts directly as a sedative on the sensory nerves which supply intracranial tissues, particularly those nerves which accompany arteries or supply the dura, or that it acts directly on autonomic nuclei in the hypothalamus. This explanation does not, however, take into account the fact that ergotamine relieves not only the headache but also other symptoms, such as scotoma, hemianopia, paralysis and malaise.

Rheumatic Cardiac Disease.—Werner studied 100 consecutive ward cases of rheumatic cardiac disease in which there was heart failure, seventy-five cases of the same condition with necropsy and fifty cases of syphilitic cardiac disease included for comparative purposes. Signs of active rheumatic fever have been demonstrated in 45 per cent of the clinical cases of rheumatic cardiac disease. Activity has been suspected in an additional 21 per cent. In the pathologic material, active lesions have been found in 66 per cent of the cases of rheumatic cardiac disease. An exertional or mechanical factor associated with cardiac insufficiency was definite in only 8 per cent of the cases of rheumatic cardiac disease and 7 per cent of the cases of syphilitic cardiac disease. There was no demonstrable factor in the remaining 26 per cent and 48 per cent of the cases of rheumatic and syphilitic cardiac disease, respectively. Infection of the respiratory tract is concomitant with the loss of cardiac reserve in 50 per cent of the clinical cases of rheumatic and syphilitic cardiac disease. A seasonal rise in the number of patients with rheumatic fever admitted to the hospital for cardiac insufficiency is indicated, corresponding to the known statistics on morbidity for rheumatic fever in New York City. The observation is not demonstrable in the series with syphilitic cardiac disease.

Erythrocyte Fragility in Pneumonia.—Needles discusses the fragility of the erythrocytes in pneumonia and describes a modified technic for their determination. It is believed that the use of the test may open new avenues in the investigation of pneumonia, and it is suggested that the test be employed in cases of other infections, particularly of the pulmonary type. A difference in climate and race may cause some difference in results. In pneumonia, depending on the severity of the illness and on its toxicity or the amount of lung tissue involved, the resistance of the red blood cells to hemolysis becomes greater. When the disease is mild, this may amount to as little as from 0.02 to 0.04 per cent, while when it is severe it may be as great as 0.14 per cent. In fatal cases the resistance of the erythrocytes is very great, becoming progressively more marked as the disease advances. There is a possible use for such an examination as an aid to prognosis. Mild pneumonia causes only slight changes in fragility. Therefore it may be assumed that as long as the erythrocyte resistance remains above 0.4 per cent the prognosis is good. However, the author has seen patients recover in whom the point of beginning hemolysis had been as low as 0.34 per cent. The crisis in fragility lags from one to three days behind the crisis in fever, and it is not unusual to see low fragility readings from one to three days following the restoration of the normal temperature. The mechanism is not clear. It seems likely that it is a phenomenon intimately related to the amount of lung tissue consolidated and thus connected with the oxygen-carbon dioxide equilibrium of the blood. The cases that the author reports occurred in Brazilians and there may be some racial idiosyncrasy. Most of the patients in this region are carriers of chronic malaria, many have syphilis, and almost all have one or more types of intestinal parasites. In nearly all, the spleen is enlarged from one to four times. The series of normal patients have shown that the normal limits for erythrocyte fragility in this area are the same as in more northern climates and in the white race, i. e., from 0.36 to 0.44 per cent, and would tend to show that the same pathologic reactions would also be present. This is not conclusive.

Archives of Pathology, Chicago

21: 1-126 (Jan.) 1936

*Etiology of Amyloid Disease, with Note on Experimental Renal Amyloidosis. C. M. Eklund and H. A. Reimann, Minneapolis.—p. 1.
Parathyroid Glands: I. Study of the Normal Gland. J. R. E. Morgan, Boston.—p. 10.
*Myasthenia Gravis: Study of Postmortem Observations, Including Demonstration of Gram-Positive Bacteria (Streptococci) In and Between Muscle Fibers. H. R. Butt, Rochester, Minn.—p. 27.
Rôle of Pia in Encephalomeningitis and Meningo-Encephalitis. H. W. Williams, Schenectady, N. Y.—p. 35.
Osteoblastoma of Kidney, Histologically Identical with Osteogenic Sarcoma. R. B. Haining and F. E. Poole, Los Angeles.—p. 44.
Tumors of Ovary, with Especial Reference to Benign Fibro-Epithelioma (Brenner Tumor). B. H. Neiman, Chicago.—p. 55.
Experimental Thrombopenic Purpura in Dog. L. M. Tocantins, Philadelphia.—p. 69.
Primary Tuberculous Infection of Intestine. H. S. Reichle, Cleveland.—p. 79.

Etiology of Amyloid Disease.—The experiments of Eklund and Reimann show that constant hyperglobulinemia induced by repeated injections of sodium caseinate preceded the development of amyloid disease in each of five rabbits. The observations support the theory that chronic hyperglobulinemia is important in the development of amyloidosis of the secondary type. During long periods of hyperglobulinemia an attempt is made by the cells to remove the excess of globulin from the blood. If the amount is not too great or too persistent, the excess can be disposed of successfully. However, if the cells become overwhelmed or if they cease to function owing to injury or disease, excess amounts are deposited in increasing quantities until the condition is incompatible with life. Furthermore, experimental studies and clinical observations show beyond doubt that the process is reversible. If the conditions responsible for the hyperglobulinemia are removed, provided the amyloidosis is not too extensive, resorption of the substance and recovery may occur. Histologic sections of the kidneys of the rabbits studied showed extensive destruction of glomeruli caused by the deposit of amyloid substance in the tufts. The tubules were generally dilated and plugged with amyloid. In four rabbits it appeared that the depletion of the albumin content of the blood was caused by the escape of abnormally large amounts of albumin through the damaged kidneys. In the other rabbit a diminution in the amount of blood albumin was noted nine months before marked albuminuria occurred. In this rabbit, in contrast with the others, there was extensive infiltration of the liver and spleen, which may have been partly responsible for the diminution in the amount of blood protein. The symptoms, signs, laboratory data and pathologic changes in the kidneys of rabbits in the terminal stage of amyloidosis were typical of those noted during renal amyloidosis and uremia in man in regard to albuminuria, normal blood pressure, normal eyegrounds, retention of nonprotein nitrogen, positive congo red test and lowering of the blood protein level, with marked loss of albumin and relative or absolute increase in the amount of globulin. Edema was not noted. Extensive renal amyloidosis developed in each animal, which appeared to be heralded clinically by albuminuria and a drop in the blood protein level. Both renal and hepatic lesions are known to modify the blood protein level. It is misleading, therefore, to attempt to correlate the changes in the blood protein level found in advanced amyloidosis with the etiology of the disease. The conditions are different during the incipient period of the disease. The amount of blood protein, especially that of the globulin, was markedly above normal. In the late stage, when evidence of renal disease appeared, the total protein content was reduced below the normal level, because of the marked diminution of the albumin content.

Myasthenia Gravis.—When performing a necropsy in a case of myasthenia gravis shortly after a similar examination had been made in a case of dermatomyositis, Butt observed that microscopic study of the muscles in the two cases revealed certain resemblances. The collections of lymphocytes in the muscles in both cases suggested a chronic infection. The inference was that the underlying cause of myasthenia gravis was a type of infection that became localized in the muscles in a manner similar to the localization of rheumatism in joints and also that, since the lesions in myasthenia gravis, scleroderma and dermatomyositis often present similar pictures, they might all be related to a common type of infection with different local-

izing properties. This observation led to the study of the pathologic changes in seven cases of myasthenia gravis in which necropsy had been performed. In muscles from the bodies of seven patients who died of causes other than myasthenia gravis, no bacteria could be observed, but gram-positive bacteria resembling streptococci were noted in the seven cases of myasthenia gravis. The possibility of contamination of the tissues by the microtome knife or by fluids used in preparation was excluded. Collections of lymphocytes were observed in all but two of the seven cases of myasthenia gravis. In all the cases there was a form of degeneration in some of the sections of muscle. Thymomas were observed in two cases. The fact that gram-positive organisms were observed in the muscles of the patients who had myasthenia gravis and were not seen in the muscles of a similar number of control subjects suggests that these bacteria may be the origin of the toxin that produces the characteristic fatigability in this disease.

Canadian Medical Association Journal, Montreal

34: 1-124 (Jan.) 1936

Avertin: Analysis of Sixteen Hundred Administrations. F. E. Shipway, London, England.—p. 2.
Experimental Production of Coronary Thrombosis and Myocardial Failure. G. E. Hall, G. H. Ettinger and F. G. Banting, Toronto.—p. 9.
Subtemporal and Suboccipital Myoplastic Craniotomy. W. Cone and W. Penfield, Montreal.—p. 16.
Embryologic and Clinical Aspect of Double Ureter. A. B. Hawthorne, Montreal.—p. 21.
Further History of Care and Feeding of the Dionne Quintuplets. A. R. Dafoe, Callander, Ont.—p. 26.
*Treatment of Congenital Syphilis with Stovarsol. A. M. Davidson and A. R. Birt, Winnipeg, Manit.—p. 33.
Surgical Emergencies in General Practice Exclusive of Trauma. R. R. Graham, Toronto.—p. 36.
Obesity and Its Treatment. W. R. Campbell, Toronto.—p 41.
Induction of Labor by Rupture of Membranes. E. M. Blair, Vancouver, B. C.—p. 49.
Administration of Iron. G. H. W. Lucas and V. E. Henderson, Toronto.—p. 53.
Is Cardiovascular Renal Disease Increasing as Cause of Death in Canada? M. T. Macklin, London, Ont.—p. 56.

Treatment of Congenital Syphilis.—Davidson and Birt state that acetarsone (stovarsol) was introduced at the Winnipeg Children's Hospital in 1932 and that the results obtained since then have been superior to those produced by older methods of treatment. The decided increase in cases cured assures this drug a place in the therapy of congenital syphilis. In addition, it offers the following advantages over other forms of treatment: 1. The oral method is much superior to the intravenous or the intramuscular route in children. 2. Syphilis can be cured only by regular treatment. In the preacetarsone series there were many at the clinic irregular in attendance. Since the introduction of acetarsone and the cessation of painful treatments there has been no difficulty in having the children attend the clinic regularly. 3. There have been fewer toxic effects in this series than are usually found with arsphenamine and neoarsphenamine. Those that have been produced were readily controlled by dosage. 4. Treatment is much cheaper than by other methods and there is no additional equipment necessary for administration. While the results obtained in their series of thirty-seven cases have been highly satisfactory (more than twice as many cures were obtained in one-third the time required for preacetarsone treatment), it seems to the authors that better results might be obtained by using a graduated dosage of acetarsone. It is their intention to treat a series of cases using the method advocated by Bratusch-Marrain.

Georgia Medical Association Journal, Atlanta

25: 1-40 (Jan.) 1936

Treatment by the General Practitioner of the More Common Diseases of the Nervous System. L. F. Barker, Baltimore.—p. 1.
Chest Conditions in Infants and Children. W. W. Anderson, Atlanta.—p. 12.
Treatment of Acute Lobar Pneumonia: Review of Five Year Records of Pneumonia in Atlanta Hospitals. C. C. Aven and A. W. Hobby, Atlanta.—p. 15.
Perforated Peptic Ulcer: Study of Thirty-Two Cases. J. C. Patterson, Cuthbert.—p. 20.
Complications of Treatment of Syphilis in Pregnancy: Report of Three Cases of Arsenical Encephalitis Complicating Such Treatment. E. B. Woods, Augusta.—p. 23.

Illinois Medical Journal, Chicago

69: 1-100 (Jan.) 1936

Preventive Medicine in the Medical Curriculum: Historical Perspective. D. J. Davis, Chicago.—p. 21.
Roentgen Diagnosis of Intracranial Lesions. A. Hartung and T. J. Wachowski, Chicago.—p. 25.
Epidemic Pleurodynia in Illinois. T. Kirkwood, Lawrenceville, and C. G. Stoll, Sumner.—p. 29.
The Problem of the Asthmatic Child. F. W. Schlutz, Chicago.—p. 33.
*Histidine Monohydrochloride Therapy of Gastroduodenal Ulcer. I. F. Volini, Chicago, and R. F. McLaughlin, Price, Utah.—p. 39.
Diverticula of Colon. H. C. Ochsner, Waukegan, and J. A. Bargen, Rochester, Minn.—p. 45.
Management of Lesions of Female Urethra. L. W. Riba, F. A. Christiansen and D. K. Hibbs, Chicago.—p. 47.
*Leukopenic Index in Intractable Asthma. M. Zeller, Chicago.—p. 54.
Roentgen Study of Lesions of Urinary Bladder. P. B. Goodwin, Peoria.—p. 58.
Petrolatum Oil Pneumonia in an Adult. F. E. Ball, Chicago.—p. 62.
Merits of Blood Transfusion in Septicemia. F. Stenn, Chicago.—p. 65.
Modern Principles in Treatment of Early Syphilis. H. J. Burstein, Decatur.—p. 68.
Malunion of Colles's Fracture and Its Surgical Correction. F. G. Murphy, Chicago.—p. 72.
Value of Excretion Urography as Illustrated by Some Interesting Cases. A. E. Perley, Quincy.—p. 75.
Hyperthyroidism Masked as Essential Hypertension. S. K. Robinson, Chicago.—p. 77.
*Treatment of Hemorrhage in Hemophiliacs and Nonhemophiliacs with Theelin in Oil: Preliminary Report. E. B. de Silva, Rock Island.—p. 81.
The Colon as Source of Abdominal Pain. L. C. Gatewood, Chicago.—p. 84.
X-Rays in Detection of Pathology of Cervix, Corpus Uteri and Oviducts. B. H. Orndoff, Chicago.—p. 88.
Cause for Removal of Eye. L. L. Mayer, Chicago.—p. 91.
Medical Adjuvants in the Management of Increased Intra-Ocular Tension. J. E. Lebensohn, Chicago.—p. 94.

Histidine Monohydrochloride Therapy of Gastric Ulcer.—Volini and McLaughlin give the results of seventy-three patients treated by parenteral histidine monohydrochloride, observed over a period of six months. After a six months check-up, 79 per cent of the cases were clinically improved and 21 per cent were considered failures. The percentage of favorable responses varied inversely with the duration of the symptoms. It is very difficult to evaluate the mode of action whereby histidine produces the beneficial result. Weiss and Aron expressed the opinion that histidine promotes, restores and maintains the epithelial integrity of the gastric and duodenal mucosa. The absence of histidine, an essential amino acid not synthesized in the human body, thus produces a metabolic defect, which is restored by parenteral injection in this treatment. The possibility of a different mode of action has been investigated by the authors in studies on ulcer production and prevention, which are in course of publication. They produced gastric ulcers in rats by repeated injections of histamine dihydrochloride. They also demonstrated ulcer formation in rats by the use of repeated histamine enemas. These experimental ulcers did not occur when the animals were protected by previous injections of histidine monohydrochloride. Their observations suggest, first, a working hypothesis for ulcer production; that is, by repeated histamine stimulation, peptic ulcers are produced. Further scientific investigation is being made. Secondly, another working hypothesis is permissible, that histidine stimulates the production of histaminase, which inactivates histamine. Gastrin (gastric secretin) action is inhibited, thus reducing gastric juice acidity, gastric secretion and possibly peptic activity. This could explain the change in physical character in the gastric secretion. The diminution in gastric motility could likewise be attributed to this action.

Leukopenic Index in Intractable Asthma.—Zeller performed 106 leukopenic index determinations on twelve patients in whom the usual diagnostic procedures failed to reveal sufficient observations to effect relief of symptoms. Of the fifty-four proved clinically positive instances, thirty-seven showed negative skin tests with a decrease in the white cell counts of more than 1,000 cells. This represents 34.91 per cent of the total number of cases tested and 68.52 per cent of the clinically positive cases. An increase in leukocytes with proved positive clinical response but negative skin tests was presented in twelve foods (11.32 per cent) of the total number and 22.22 per cent of the clinically positive instances. In three clinically positive foods the leukopenic response corresponded with the positive skin test, while in two clinically positive foods an increase of

leukocytes with positive skin tests was noted. Of the thirty-nine clinically negative instances, twenty-three (21.70 per cent) of the total number (106) tested showed a digestion leukocytosis associated with negative skin test. Six clinically negative foods with positive skin tests also showed a leukocytosis, while one showed a leukopenia. Nine clinically negative foods showed a leukopenia with negative skin tests. Five of the twelve cases of asthma eventuated in good results clinically. Three had responded fairly well to the usual allergic measures, but after utilizing information gained by the leukopenic index determinations improved to the extent of being classified under good results. The remaining two cases presented no improvement prior to leukopenic index determinations. Four cases in which fair results were obtained had shown no clinical improvement until food eliminations based on leukocyte counts were made. No improvement was obtained in three cases. One of these failed to show a single food producing blood counts toward the positive phase. The remaining two failed to respond clinically even after eliminating foods with leukocytic indexes in the negative phase.

Treatment of Hemorrhage with Theelin in Oil.—De Silva used theelin in oil in the treatment of hemophiliac and nonhemophiliac hemorrhage. With the intramuscular use of one ampule, 1,000 international units per cubic centimeter of theelin in oil every two to three hours, great improvement, if not complete cessation, was apparent after the injection of from three to four ampules. The use of theelin has proved of exceptional value in the author's hands but must be given as often as every two hours in one ampule doses unless in extreme conditions, when he advises two ampules for the first dose. Several patients have complained of severe stinging at the site of injection, which he relieved by drawing the theelin into the syringe and then 4 to 5 mm. of a 1 to 2 per cent solution of procaine hydrochloride, so that, on injecting, the amount of procaine was injected first and, after four or five seconds, the rest of the syringe, with absolutely no pain to the patient, who even asked if the hypodermic had been given. Several cases are cited. The author is of the opinion that the ovaries in the female are the restrainer of the hemophiliac conditions but that their destruction or removal may allow hemophilia to occur.

Journal of Biological Chemistry, Baltimore

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Question of Utilization of Tryptophane Administered Subcutaneously. V. du Vigneaud, R. R. Sealock and C. Van Etten, Washington, D. C. —p. 451.

Study of Serum Lipids by Microgravimetric Technic. W. R. Wilson and A. E. Hansen, New Haven, Conn.—p. 457.

Monohydroxypalmitic Acid in Butter Fat. A. W. Bosworth and G. E. Helz, Columbus, Ohio.—p. 489.

Determination of Stereochemical Purity of *l*-Cysteine. G. Toennies and Mary A. Bennett, Philadelphia.—p. 497.

Production of Deficiency Involving Cystine and Methionine by Administration of Cholic Acid. A. White, New Haven, Conn.—p. 503.

Phosphatase Content of Blood Serum and Tissues in Rat Following Administration of Vitamins D and A. P. D. Crimm and J. W. Strayer, Evansville, Ind.—p. 511.

Adenine Nucleotide Content of Human Blood: II. Correlation with Hemoglobin. Mary V. Buell, Baltimore.—p. 523.

Chemistry of Lipids of Yeast: III. Lecithin and Cephalin. L. F. Salisbury and R. J. Anderson, New Haven, Conn.—p. 541.

Blood Cholesterol in Carotid Artery, Venae Cavae and Portal Vein. F. H. Shillito, Emily H. Bidwell and K. B. Turner, New York.—p. 551.

Enzymic Synthesis from Thyroid Diiodotyrosine Peptone of Artificial Protein Which Relieves Myxedema. W. T. Salter and O. H. Pearson, Boston.—p. 579.

Lipid Composition and Physiologic Activity in Ovaries of Pregnant Guinea-Pigs. E. M. Boyd, Rochester, N. Y.—p. 591.

Influence of Feeding Amino Acids and Other Compounds on Excretion of Creatine and Creatinine. M. Bodansky, with technical assistance of Virginia B. Duff, Galveston, Texas.—p. 615.

Studies on Pancreatic Lipase: I. S. S. Weinstein and A. M. Wynne, Toronto.—p. 641.

Id.: II. Influence of Various Compounds on Hydrolytic Activity. S. S. Weinstein and A. M. Wynne, Toronto.—p. 649.

Determination of Thiol and Disulfide Compounds, with Especial Reference to Cysteine and Cystine: VII. Application of Modified Phospho-18-Tungstic Acid Method for Determination of Cysteine, Cystine and Ascorbic Acid in Urine. K. Shinohara and K. E. Padis, Philadelphia.—p. 709.

Chemistry of Lipids of Tubercle Bacilli: XLII. Studies on Phthioic Acid. M. A. Spielman and R. J. Anderson, New Haven, Conn.—p. 759.

Journal of Immunology, Baltimore

30: 1-108 (Jan.) 1936

*Study of Pneumococcus Toxins. A. F. Coca, with assistance of H. W. Straus and Ella F. Grove, New York.—p. 1.

Two Antigens of High Molecular Weight: Hemocyanins of Limulus Polyphemus and Fulgur Caniculatus. S. B. Hooker and W. C. Boyd, Boston.—p. 33.

Existence of Antigenic Determinants of Diverse Specificity in Single Protein: III. Further Notes on Crystalline Hen Ovalbumins and Duck Ovalbumins. S. B. Hooker and W. C. Boyd, Boston.—p. 41.

Relation of Adrenal Glands to Immunologic Processes: Effect of Cortico-Adrenal Extract on Hemolysin Production in Normal Adult Laboratory Animals. C. A. Fox and R. W. Whitehead, Denver.—p. 51.

Differentiation in Suipestifer Group and on Resistance to Phage. P. Levine and A. W. Frisch, Madison, Wis.—p. 63.

Specificity of Multiplication of Bacteriophage. A. W. Frisch and P. Levine, Madison, Wis.—p. 89.

Study of Pneumococcus Toxins.—Coca demonstrated a toxin in filtrates of pneumococcus cultures the injection of which in young children caused a rise in temperature, which reached 105 F. in the more susceptible. All of thirty-four children less than 3 years of age, excepting two who previously suffered from either bronchopneumonia or a severe bronchitis, were found susceptible to the type I toxin. All of thirty-one persons suffering from or convalescent from pneumococcic pneumonia were found immune to the type I toxin (skin test). The toxin seems to be type specific. It is not the type-specific polysaccharide. Cultures grown in the absence of artificially supplied carbon dioxide have been found to contain toxin which, however, seemed not to be capable of stimulating antitoxin production in human beings. Two injections in children were followed, in the majority of instances, by prompt antitoxin production (one or two weeks). Serum from two pneumonia convalescents neutralized the pneumococcus type I toxin.

Journal of Lab. and Clinical Medicine, St. Louis

21: 225-334 (Dec.) 1935

*Behavior of Eosinophils in Rheumatic Fever. G. Friedman and E. Holtz, New York.—p. 225.

Influence of Sucrose Ingestion on Amino Acid Nitrogen and Urea Nitrogen Concentration of Blood. E. G. Schmidt and J. S. Eastland, Baltimore.—p. 233.

Chronic Hypertension of Nervous Origin. J. J. Izquierdo, Mexico.—p. 235.

Abridged Key to Species of Pathogenic Fungi. F. W. Shaw, Richmond, Va.—p. 243.

Fermentation and Gas Production by Bacillus Coli in Simple and Mixed Sugars. Eugenia Valentine and K. G. Falk, New York.—p. 257.

*Further Contribution to Liver-Kidney Syndrome. F. C. Helwig and C. B. Schutz, Kansas City, Mo.—p. 264.

Intranasal Application of Insulin. R. H. Major, Kansas City, Kan.—p. 278.

Fungicides: I. Influence of Hydrogen Ion Concentration on Growth of Yeastlike Organisms. H. C. Hesseltine and W. J. Noonan, Chicago. —p. 281.

Id.: II. In Vitro Tests with Number of Chemicals on Yeastlike Organisms and Other Fungi. H. C. Hesseltine and E. W. Hopkins, Chicago.—p. 288.

*Thoracic Duct Lymph Pressure in Concretio Cordis: Experimental Study. A. Blalock and C. S. Burwell, Nashville, Tenn.—p. 296.

Diuretic Action of Mercupurin. L. G. Steuer and S. E. Wolpaw, Cleveland.—p. 298.

Preparation of the Krueger Undenatured Bacterial Antigens. H. M. Powell and W. A. Jamieson, Indianapolis.—p. 301.

*More Sensitive Complement Fixation Test for Gonorrhea. J. Koopman and I. D. Falker, New York.—p. 308.

Inadequacy of Present Complement Titrations. J. Koopman and I. D. Falker, New York.—p. 312.

Metabolism Chamber Which Automatically Maintains a Constant Partial Pressure of Oxygen. H. F. Pierce, New York.—p. 317.

Behavior of Eosinophils in Rheumatic Fever.—Friedman and Holtz present seven case histories illustrating four features of the behavior of the eosinophils during the course of rheumatic infection. These are (1) the disappearance of the eosinophils from the peripheral circulation during accessions of acute polyarthritis and carditis, (2) the reappearance of the eosinophils and eosinophilia during the early stages of recovery, (3) persistent eosinophilia in cases of continued activity and (4) transient hypo-eosinophilia or aneosinophilia during minor exacerbations in cases of chronic rheumatic heart disease. The behavior of the eosinophilic polymorphonuclear leukocytes in rheumatic fever is similar in all respects to that seen in other infections. In so-called chronic rheumatic heart disease, the presence and absence of the eosinophils and the occurrence of eosinophilia have the same significance as in other infections. The concept of rheumatic heart disease as a chronic infection with frequent acute exacerbations of variable degree offers the

key to an understanding of the apparent complexity of the eosinophilic behavior. Thus repeated and continuous absence of the eosinophils from the blood over a period of time was always found to be associated with other evidences of a severe and active infection. In the majority of cases showing continuous aneosinophilia or hypo-eosinophilia of this type, the patient was ill enough to be confined to bed. Conversely, when the eosinophils were continuously present in normal or increased numbers, the infection was always subsiding. Eosinophilia indicates convalescence, which in rheumatic fever is admittedly very often a protracted process. Occasional aneosinophilia occurring in patients who usually present normal or high counts undoubtedly indicates miniature exacerbations of activity which give rise to little or no clinical disturbance. The eosinophil behavior in rheumatic fever affords another point of identity, and the analogy constitutes further evidence in favor of the allergic hypothesis. Continued observation of the behavior of the eosinophils, over long periods of time in the less acute cases, is a reliable index of activity of rheumatic infection and is valuable as a basis, in some cases, for immediate prognosis and clinical management.

Liver-Kidney Syndrome.—Their observations in two cases illustrative of the liver-kidney syndrome suggest to Helwig and Schutz the idea that the pathogenesis of the syndrome depends primarily more on the development of some specific type of intracellular hepatic damage than on the degree of actual morphologic cellular damage to which ordinary cell injury may extend. When they consider the wide variety of liver lesions and the more constant sequence of clinical events in which the renal picture assumes the most prominence as the syndrome progresses, it appears more and more convincing that some toxin is the causative factor. This toxin may have been produced as the result of a perversion of function of damaged liver cells or by a lack of some physiologic detoxifying function of the liver parenchyma that permitted the production or the accumulation of a substance highly toxic to renal function. A hemorrhagic diathesis is also not a rare complication in certain cases of renal disease when no accompanying liver lesion is present. At present, however, the true etiology of such bleeding is not completely understood. Experimentally, uniform results could not be obtained when an attempt was made to reproduce the liver-kidney syndrome in animals.

Thoracic Duct Lymph Pressure in Concretio Cordis.—Blalock and Burwell produced Pick's disease in two dogs by the introduction of aleuronat into the pericardial cavity. This resulted first in the formation of fluid in the pericardial cavity and later in the fusion of the pericardium and epicardium. The venous pressure rose and fluid accumulated in the peritoneal cavity. Three weeks following the introduction of aleuronat into the first dog, the pressure in the external jugular vein was 120 mm. of water and that in the femoral vein 140 mm. Under morphine narcosis, the cerebrospinal fluid pressure was found to be 240 mm. of water. Under ether anesthesia, the thoracic duct which was markedly dilated was exposed in the neck. Blood was present in the duct for a distance of approximately 1 cm. peripheral to its entrance into the vein. The pressure in the duct was found to be 150 mm. of water, while that in the subclavian vein was 165 mm. The animal was killed and a typical instance of concretio cordis was demonstrated. In the second experiment, the animal appeared ill seventeen days following the introduction of aleuronat. The pressure in the external jugular vein was 155 mm. of water and that in the femoral vein 175 mm. The cerebrospinal fluid pressure was 200 mm. Under ether anesthesia, a markedly dilated thoracic duct was exposed. A small amount of blood could be seen during expiration in the duct at its entrance into the vein. The pressure in the thoracic duct was found to be 200 mm. of water and that in the subclavian vein 175 mm. Following the removal of the needle from the duct, a pulsating stream of lymph shot out through the hole of the needle during each expiration. Several hundred cubic centimeters of lymph escaped during the thirty minutes that the duct was exposed. The incision was closed and the animal died two days later. There were 1,100 cc. of blood tinged fluid in the pleural cavities and 90 cc. of thin yellowish fluid in the peritoneal cavity. The pericardium and epicardium were fused and thickened. There was an exudate covering the liver.

Sensitive Complement Fixation Test for Gonorrhea.—Koopman and Falker devised a complement fixation test for gonorrhea that requires a readjustment of the quantities of reagents used and a new interpretation of readings. In a proper gonorrhea fixation test it is imperative that the readings be made at the point where the concentration of complement approaches its threshold value: when the concentration of complement is reduced, the test cannot be completed in the usual manner because the control tubes will be anticomplementary and the reaction tubes will not show definite positive or negative reactions. A properly planned titration demonstrates how these difficulties may be overcome. Therefore when the first requisite of gonorrhea fixation tests is fulfilled, i. e., the use of reduced concentration of complement, to get clearer control tubes and clear cut negative reactions, the cell suspensions must be lighter than those used in present work. Furthermore, as the density of the suspensions is decreased, hemolysis disappears in the positive reaction tubes and definite positive reactions are at last attained. The authors have found that highly satisfactory results are obtained when one fifth of the reacting complement fixation solution is made up of sensitized cells. The sensitized cell suspension consists of one part of 5 per cent cells and one and one-half parts of hemolysin of the proper titer. The standard that determines their readings is that complement fixation should be judged by the difference between the amount of complement absorbed nonspecifically in the control tube and the amounts fixed both nonspecifically and specifically in the reaction tubes. An essential difference between the proposed test and the classic test is that they do not attempt a quantitative estimation of complement fixation by varying the amount of serum but by changing the concentration of the complement in the hemolytic system and by estimating the amount of fixation by the threshold value of the complement left over. In this new test, advantage is taken of the fact that in hemolytic systems complement acts according to its concentration rather than its absolute quantity. That quantity of complement to be used in the tests is the amount which causes almost complete hemolysis. The proper tube will have a trace of cloudiness caused by cells that have not been hemolyzed. The complement is then diluted so that 0.1 cc. contains the amount indicated by the titration. It is essential that the amount of antigen used is an excess. Additional antigen should not increase the amount of fixation of the positive specimens. For ease of manipulation, following the first incubation, the saline and sensitized cell suspension should be mixed together and added by a single pipetting, and the specimens reincubated. This also makes for increased accuracy. In a minus reaction, the first reaction tube is as much hemolyzed as the control. In a plus reaction, the first reaction tube colorimetrically shows definite fixation against the control. The second reaction tube approaches complete hemolysis. In a two plus reaction, the first reaction tube has only a faint trace of hemolysis or is completely fixed. The second reaction tube has much hemolysis. In a three plus reaction, the first reaction tube is completely fixed. The second reaction tube has a faint trace of hemolysis or is completely fixed. The third reaction tube has definite hemolysis. In a four plus reaction, all the reaction tubes are completely fixed.

Journal of Pediatrics, St. Louis

8: 1-134 (Jan.) 1936

Normal Cevitamic (Ascorbic) Acid Determinations in Blood Plasma and Their Relationship to Capillary Resistance. A. F. Abt, C. J. Farmer and I. M. Epstein, Chicago.—p. 1.
Indigo Carmine for Quantitative Determination of Glucose in Cerebrospinal Fluid. D. J. Cohn and A. Levinson, Chicago.—p. 20.
Lysozyme Content of Blood. W. L. Bradford and J. B. Roberts, Rochester, N. Y.—p. 24.
Significance of Individual Variations. A. H. Washburn, Denver.—p. 31.
Congenital Shortening of Esophagus. J. B. Gillespie, Urbana, Ill.—p. 38.
*Prolonged Use of Acetylsalicylic Acid with Addition of Magnesium Oxide in Treatment of Rheumatic Infection in Children. A. D. Kaiser, Rochester, N. Y.—p. 41.
*Certain Physical and Physiologic Aspects of Adolescent Development in Girls. Helen B. Pryor, San Francisco.—p. 52.
Fibroma of Mesentery: Report of Case in a Six Day Old Infant. O. C. Bruton, Nashville, Tenn.—p. 63.
Childhood Leukemia. Mila Pierce, Chicago.—p. 66.

Use of Acetylsalicylic Acid and Magnesium Oxide in Rheumatic Infection.—Kaiser attended two groups of rheumatic children (seventy-five in each) with similar manifestations over a period of from six to twelve months. The treated group

received daily from 10 to 15 grains (0.65 to 1 Gm.) of acetylsalicylic acid with magnesium oxide. This group showed a decided improvement over the untreated group in the children who had rheumatic pains alone. The treated children with chorea likewise fared better than did the control group not so treated. No measurable benefit could be noted in the treated group who showed evidence of rheumatic carditis alone. The vague or milder manifestations of rheumatic infection were relieved in more of the treated children than in the control children. There were fewer recurrent attacks of major rheumatic manifestations in the treated group than in the control group. No untoward or unpleasant reactions were observed in any of the treated cases. It would seem that acetylsalicylic acid with the addition of magnesium oxide is preferable to other antirheumatic drugs when used over a long period of time.

Adolescent Development in Girls.—Pryor made a serial study of the adolescent growth spurt in 100 girls from 9.5 to 14 years of age. Examinations extending over four years, at half-year intervals, demonstrated a period of rapid growth during the six months immediately preceding the onset of catamenia. Gain in height preceded gain in weight and was evenly distributed over a period of eighteen months. Pubescent girls averaged a height increase of 10.64 cm. in eighteen months, compared to 9.38 cm. for nonpubescent girls. The rate of height gain for pubescent girls during the last six months before the appearance of menses was 26 per cent faster than for nonpubescent girls. Gain in weight was specifically stimulated by approaching menses. Pubescent girls gained weight 55 per cent faster during the six months just preceding catamenia than they did during the preceding year. Girls of broad body build menstruated earlier than girls of slender build. Pubescent girls were consistently taller, heavier and broader than nonpubescent girls of similar ages in a series of 422 cases. A predominant pattern of development of pubic and axillary hair accompanied the onset of catamenia regardless of chronological age. A certain degree of enlargement of the thyroid appeared destined to accompany the first appearance of menses. A fairly constant stage of development of the breast was seen regularly at the same time. Interrelationships among certain secondary sex characteristics suggest themselves as criteria of a physiologic age which is much more constant than chronological age for predicting the onset of catamenia.

Medical Annals of District of Columbia, Washington

5: 1-28 (Jan.) 1936

The Newer Public Health. G. C. Ruhland, Washington.—p. 1.
The New United States Pharmacopeia (U. S. P. XI) and the Public Health. G. B. Roth, Washington.—p. 5.
Genito-Urinary Tuberculosis. W. P. Herbst, Washington.—p. 12.
Fundamentals of Internal Medicine: Diseases of Nervous System. A. Schneider, Washington.—p. 15.

Psychiatric Quarterly, Albany, N. Y.

10: 1-192 (Jan.) 1936

Mental Symptoms in Brain Tumors. I. N. Wolfson, Poughkeepsie, N. Y.—p. 5.
Value and Application of Hydrotherapy in a Mental Hospital. N. D. Black, Marcy, N. Y.—p. 34.
Treatment of Behavior Disorders in Children: Review of Literature. W. H. English, Rochester, N. Y.—p. 45.
Survey of Cases of Dementia Praecox Discharged from Psychiatric Institute and Hospital. W. A. Horwitz and C. Kleiman, New York. —p. 72.
Psychoses Occurring in a Father and His Two Daughters. F. Rosenheim, Central Islip, N. Y.—p. 87.
*Results of Ten Years of Malarial Therapy. C. W. Hutchings, Marcy, N. Y.—p. 99.
Hereditary and Environmental Factors in Causation of Dementia Praecox and Manic-Depressive Psychoses. H. M. Pollock, B. Malzberg and R. G. Fuller, Albany, N. Y.—p. 110.
Statistical Study of Mental Diseases Among Natives of Foreign White Parentage in New York State. B. Malzberg, Albany, N. Y.—p. 127.
Psychosis Following Anesthesia. S. C. Karlan, Dannemora, N. Y. —p. 143.
Auditory Hallucinations in Prison Psychosis. R. Schwarz, Dannemora, N. Y.—p. 149.

Malarial Therapy.—Hutchings deals with the report of 182 male dementia paralytica patients who were admitted to the hospital in a routine way and who were thought to be in a suitable condition for malarial therapy. Many of the patients received treatment with arsenicals as well, and these are considered. Of the 182 patients, sixty-six were much improved by treatment and were discharged. There were fifty-four who improved under treatment; of this number, twenty-five returned home able to do some work, ten who were considered to be improved were not discharged and subsequently died in the hospital, and nineteen remain in the hospital today. Of the remaining sixty-two who did not show any satisfactory response to treatment, twenty-three are still in the hospital and thirty-nine are dead.

Public Health Reports, Washington, D. C.

51: 53-76 (Jan. 17) 1936

Effect of Certain Bacterial Products on Growth of Mouse Tumor. L. C. Fogg.—p. 56.

51: 77-108 (Jan. 24) 1936

Diets of Low-Income Families Surveyed in 1933: Health and Depression Studies Number Three. Dorothy G. Wiehl.—p. 77.

Science, New York

83: 41-64 (Jan. 17) 1936

Iodine in Goiter Treatment. R. K. Summerbell and F. D. Ayres, Chicago.—p. 56.
Genetics, Sulfhydryl and Cancer. F. S. Hammett, Philadelphia.—p. 57.
Growth in Height and Weight in College and University Women. R. G. Barker and C. P. Stone, San Francisco.—p. 59.
*Ketene ($CH_2 = CO$): New Reagent for Detoxification of Vaccine. J. T. Tamura and M. J. Boyd, Cincinnati.—p. 61.

Ketene for Detoxification of Vaccine.—Tamura and Boyd observed that acetylation of Bacillus dysenteriae Shiga with ketene for half an hour detoxifies the antigen. Such an antigen can be inoculated in large doses into rabbits without producing toxic effects. Animals immunized with ketene-treated vaccine are highly resistant to doses of living or heat-killed bacilli that are lethal for nonimmunized animals.

Southern Medical Journal, Birmingham, Ala.

28: 1075-1200 (Dec.) 1935

John Gorrie: Physician, Scientist, Inventor. H. M. Taylor, Jacksonville, Fla.—p. 1075.
Ventriculography via Anterior Horns. E. F. Fincher Jr., Atlanta, Ga. —p. 1082.
Accurate Subtotal Resection of Sensory Root for Relief of Major Trigeminal Neuralgia. R. M. Klemme, St. Louis.—p. 1086.
Impotence in Man: Preliminary Report of New Operation for Relief of Certain Cases. O. S. Lowsley, New York.—p. 1091.
Bilateral Complete Ureteral and Pelvic Reduplication with Ectopic Supernumerary Ureteral Orifice on One Side, Without Incontinence and With Communication Between the Two Right Ureters. E. H. Fite, Muskogee, Okla.—p. 1098.
Esophageal Obstruction: Diagnosis and Treatment. M. Equen, Atlanta, Ga.—p. 1103.
Discussion of Dietetics and Dietetic Fads. J. E. Knighton, Shreveport, La.—p. 1108.
Chronic Arthritis: Treatment by Intravenous Vaccine. G. Milliken, Houston, Texas.—p. 1110.
Diagnosis and Management of Anemia. J. E. Sherman, Maysville, Ky. —p. 1112.
Experimental Study of Treatment of Benzol-Produced Agranulocytosis in Albino Rats. A. E. Greer, Houston, Texas.—p. 1114.
Thyrotoxicosis in Children: Report of Twelve Cases of Exophthalmic Goiter. C. J. Bloom, New Orleans.—p. 1123.
Remarks on Pyloric Obstruction in Early Infancy. E. P. Copeland, Washington, D. C.—p. 1132.
Management and Treatment of Meningococcus Meningitis. G. M. Cultra, Amarillo, Texas.—p. 1136.
Pediatric Training Yesterday and Today. D. L. Smith, Spartanburg, S. C.—p. 1138.
Application of Modern Methods in Management of Pulmonary Tuberculosis Complicating Pregnancy. H. E. Johnson, Nashville, Tenn. —p. 1140.
Pear Pessary in Labor Induction: Technic and Advantages of Its Use. Minnie C. O'Brien, San Antonio, Texas.—p. 1143.
Diagnosis and Treatment of Uterine Bleeding. W. T. Black, Memphis, Tenn.—p. 1145.
Observations on Five Hundred Laparotomies in Negro Women. E. H. Greene, Atlanta, Ga.—p. 1147.
Endemic Typhus Fever in Southeast Texas. S. J. Lewis, Beaumont, Texas.—p. 1150.
Gastro-Intestinal Allergy: The Duodenal Ulcer Syndrome. L. P. Gay, St. Louis.—p. 1153.
Food Allergy and Other Food Factors in Angina Pectoris. G. Werley, El Paso, Texas.—p. 1156.
Typhus Fever in Texas. S. W. Bohls, Austin, Texas.—p. 1162.
Necessity for Medicolegal Investigations. V. G. Isvekov, Houston, Texas.—p. 1165.
Elective Courses in Medical Curriculum. J. H. Musser, New Orleans. —p. 1170.
Value of Pathologic Museum for the Teaching of Medicine. E. von Haam, New Orleans.—p. 1174.

Virginia Medical Monthly, Richmond

62: 553-618 (Jan.) 1936

The Doctor and His Bill: Is the Medical Profession Reactionary? A. C. Christie, Washington, D. C.—p. 553.
Poliomyelitis in Charlottesville, Va. and the Adjacent County of Albemarle. W. W. Waddell Jr. and C. W. Purcell, University.—p. 557.
Poliomyelitis: Diagnosis of Varieties. H. R. Masters and L. E. Sutton, Richmond.—p. 565.
Collapse Therapy in Pulmonary Tuberculosis. C. L. Harrell, Norfolk.—p. 572.
Present Status of Physical Therapy in Practice of Medicine. R. Kovacs, New York.—p. 578.
Vitamins and Their Place in Medicine. S. E. Gunn, Hopewell.—p. 586.
Primary Chondroma of Lung: Case Report. S. K. Livingston, Hines, Ill.—p. 589.
War Neuroses and Lack of Evidence to Establish It. F. M. Horsley, Arrington.—p. 592.
Treatment of Burns with Gentian Violet. R. M. DeHart, Christiansburg.—p. 594.
Clinical Aspects of Destruction of Adrenal Glands. G. L. Weller Jr., Washington, D. C.—p. 595.
Improved Treatment of Appendicitis: Results in Five Hundred and Two Consecutive Cases at St. Elizabeth's Hospital. G. W. Horsley, Richmond.—p. 598.
Von Gierke's Disease: Note: New Disease of Children. E. G. Scott, Lynchburg.—p. 601.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

44: 1-66 (Jan.) 1936

*Correlation Between Shape of Female Pelvis and Clinical Course of Labor. A. V. Pettit, L. H. Garland, R. D. Dunn and P. Shumaker, San Francisco.—p. 1.
X-Ray Examination of the Obstetric Patient. C. R. Johnson, Los Angeles.—p. 21.
*Is the So-Called "Safe Period" Trustworthy? L. A. Emge, San Francisco.—p. 28.

Labor and Shape of the Female Pelvis.—Pettit and his collaborators found that in their 100 unselected primigravidas the relative incidence of the various types of pelves as determined roentgenographically compares fairly closely with that of Caldwell and Moloy in their studies of skeletal material. The incidence of these types was found to be: gynecoid group, 51 per cent; android group, 21 per cent; anthropoid group, 18 per cent; platypelloid group, 5 per cent; asymmetrical pelves, 5 per cent. In the 100 pelves approximately 65 per cent constituted "pure" types and 35 per cent "mixed" types. The obstetric significance of the various types of pelves appears to be as follows: 1. The necessity for operative intervention in the gynecoid types is low. 2. The necessity for intervention in the android, anthropoid and platypelloid groups is increased especially in the "pure" types of these pelves, being as high as 40 per cent in the android types. 3. A narrow subpubic angle is the most unfavorable single anatomic feature in producing difficult labors. It is not sufficient to classify pelves on shape alone; the type of the pelvis, the size of the inlet and the shape of the subpubic angle should be considered.

The Safe Period.—Emge believes that fertilization must follow in close sequence to cohabitation, assuming that only one egg is produced in each human cycle. The proverbial unreliability of the so-called regular cycles of menstruation is still the greatest stumbling block in predicting periods of conception. More and more evidence is being introduced that unexpected irregularities in menstruation can occur at any time and in any cycle. Hence, one must doubt the infallibility of the Ogino-Knaus theory, even if applied only in the strictest sense of limiting it to known cycles of minor variabilities. The formidable proof offered by Miller and by Latz puts considerable weight behind the claims made for the Ogino-Knaus theory. Nevertheless, is it not a fact that there is no such thing as an infallible biologic law? Observations of others cannot be disregarded which place considerable doubt on the infallibility of determining the definite period of ovulation and conception. Every bit of evidence should be considered in this controversy, and considerably more must be submitted before a verdict can be arrived at. The popularization of the thought that there exists a sterile period in women has been fostered through the issuance of books in which the subject unfortunately is smothered in a conglomerate of facts, enthusiasm, sophistry and overemphasis of certain half truths. Not one of these books so far has added much to the solution of the question. The problem is still subject to debate, and the public should be informed that the matter is not settled.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

16: 497-616 (Dec.) 1935

Effects of Extracts of Pancreas on Different Viruses. Antoinette Pirie.—p. 497.
Schick Tests in Iceland. N. Dungal and J. Sigurjonsson.—p. 503.
Improved Dropping Apparatus for Preparing Antigen Suspensions for the Sigma Test. W. Ralston.—p. 505.
Cultivation of Virus of Influenza. W. Smith.—p. 508.
Hemolytic Streptococcic Fibrinolysis. C. H. Stuart-Harris.—p. 513.
Toxicity and Antigenic Properties of Different Fractions of Bacillus Dysenteriae (Shiga). L. Olitzki and J. Leibowitz.—p. 523.
Stability of Gravis, Mitis and Intermediate Types of Corynebacterium Diphtheriae. J. F. Murray.—p. 532.
In Vitro Investigation of Reaction Between Diphtheria Toxin and Antitoxin. Margaret Healey and S. Pinfield.—p. 535.
Optimal Precipitin Reactions. Annie M. Brown.—p. 554.
*Influenza: Observations on Recovery of Virus from Man and on Antibody Content of Human Serums. C. H. Andrewes, P. P. Laidlaw and W. Smith.—p. 566.
Graded Collodion Membranes for Bacteriologic Studies: Practical Aspects of Mechanism Determining Character of Membrane, and Rôles of Particular Solvent Constituents. W. J. Elford, P. Grabar and J. D. Ferry.—p. 583.
Further Studies on Differentiation of Virus of Vesicular Stomatitis from That of Foot-and-Mouth Disease, with Particular Reference to Rapid and Certain Method of Resolving Mixtures of Two Viruses. I. A. Galloway and W. J. Elford.—p. 588.

Recovery of Influenza Virus.—Andrewes and his collaborators recovered a virus pathogenic for ferrets from fourteen cases of influenza, five in 1933, one in 1934 and eight in 1935. Their successes occurred at times of prevalence of a form of infection of the upper respiratory tract of high infectivity. No virus was recovered from sporadic cases diagnosed as influenza. These observations support the view that what is commonly regarded as influenza is not an entity. It becomes, therefore, a matter of prime importance to find, if possible, some means of differentiating clinically between the disease caused by a ferret-pathogenic virus, which they identify as epidemic influenza, and other conditions resembling it. It is, of course, possible that some of the sporadic cases are due to an influenza virus in which lessened infectivity for man is associated with failure to adapt itself to the ferret. The finding of antibodies active against the human strain of virus in most adult serums is of great interest and needs further study in relation to immunity or susceptibility to infection. At present it is not known whether people having antibodies in their serums are immune to an attack of the disease or not. Francis and Magill found no antibodies to the virus in persons in the acute stage of influenza, but these developed during convalescence. In ferrets the immunity wanes during the six months following infection, and the animals regain some susceptibility at a time when antibodies are still demonstrable in their serums. The antibodies to swine influenza in adult human serums may possibly be nonspecific in the sense that they represent past contact not with that virus but with some unknown related antigen. But, if they are regarded as possibly specific, an interesting field for speculation and research is opened up. Neutralizing antibodies to human (WS) influenza virus were found in the majority of human serums examined. Their incidence was rather lower in children less than 10 years of age than in older children and adults. Neutralizing antibodies to swine influenza virus were regularly present in adult serums but were wholly absent from the serums of fourteen children less than 10 years of age. Influenza virus passaged through ferrets failed to infect two human volunteers by the intranasal route. Both these volunteers had neutralizing antibodies in their serums before the test was made.

British Journal of Physical Medicine, London

10: 143-164 (Jan.) 1936

Physiotherapy of Winter Skin Troubles. W. J. O'Donovan.—p. 144.
Certain Rheumatic Affections in Winter: Some Notes on Prevention and Treatment. J. A. Cruickshank.—p. 146.
Winter Affections of Nose, Throat and Ears: Physical Methods in Prevention and Treatment. C. H. Thomas.—p. 148.
The Quartz Mercury Arc: History and Development. B. D. H. Watters.—p. 150.
Short Wave Therapy: Some Points in Technic. M. Berry.—p. 152.
Chromotherapy: Technic and Practice. R. D. Howat.—p. 154.

British Medical Journal, London

2: 1191-1240 (Dec. 21) 1935

*Leukemic Infiltrations. J. B. Cleland.—p. 1191.
Staphylococcus Infections of Skin and Their Treatment. J. I. Connor. —p. 1195.
X-Ray Diagnosis of Acute Intestinal Obstruction. D. H. Patey and P. B. Ascroft.—p. 1197.
Significance of Leukorrhea. A. Sharman.—p. 1199.
Massive Collapse of Lung Complicating Hemoptysis. J. Mindline. —p. 1201.
Antenatal Diagnosis of Quadruplets. E. U. Williams.—p. 1206.
Quadruplets: Case. M. C. E. Constantine.—p. 1206.
The Eynesbury Quadruplets. E. H. Harrisson.—p. 1207.

Leukemic Infiltrations.—Cleland gives examples of (1) leukemic infiltration of heart muscle, in one case causing sudden death in a seemingly healthy man; (2) leukemic infiltration of the kidneys or pancreas to a degree calculated to embarrass the functions of such organs; (3) leukemic cerebral accidents in which white cells form conspicuous accumulations, mostly from the associated hemorrhage, and (4) neoplastic-like deposits of seemingly leukemic cells in various organs and tissues in known or presumed leukemic cases and in cases that have not shown any alteration in the blood picture (pseudoleukemia). Examples are given of infiltrations in lymphosarcomatosis. The author finds it difficult to decide in some cases whether the condition is a lymphosarcoma or a pseudoleukemia. He is not satisfied that there is a sharp line of demarcation between these. Examples are also given of infiltrations in acute cases of Hodgkin's disease and Hodgkin's sarcoma of Ewing. The presence, even in small numbers, of reticulum cells with compound or multiple nuclei is a help in diagnosis and enables some cases resembling lymphosarcoma to be reasonably transferred to this group.

East African Medical Journal, Nairobi

12: 261-296 (Dec.) 1935

Outline of Work on Glossina Palpalis in Kenya. C. B. Symes.—p. 263.
Loose Stools, with Particular Reference to Amebiasis: Part II. H. C. Trowell.—p. 282.

Glasgow Medical Journal

6: 265-324 (Dec.) 1935

Recent Views on Female Sex Hormones. D. Baird.—p. 265.

Indian Medical Gazette, Calcutta

70: 661-720 (Dec.) 1935

Some of the Major Complications in Treatment of Syphilis. R. V. Rajam.—p. 661.
*Treatment of Lobar Pneumonia with Intravenous Injections of Alcohol. I. Bakhsh and A. T. Andreasen.—p. 673.
Atabrine Treatment in Malaria. D. C. Hay, A. E. Spaar and H. L. Ludovici.—p. 678.
Mental Derangement in Malaria Cases Treated by Atabrine Musonate Injections. L. Udalagama.—p. 679.
Etherington Wilson Technic of Intrathecal Nerve-Root Block. A. T. Andreasen.—p. 683.

Treatment of Pneumonia with Injections of Alcohol.—Bakhsh and Andreasen employed a solution of 20 per cent alcohol in physiologic solution of sodium chloride in the treatment of six cases of uncomplicated lobar pneumonia. The dose, injected intravenously, varied from 20 to 25 cc. daily. They found later that the strength of the solution could be increased to 33 per cent without causing any more reaction than previously. In one case they had to give two injections of 12 and 10 cc. daily, owing to constant rigors which single doses of 20 cc. produced. In all the other cases the reaction to the injection was slight and limited to a feeling of chilliness from about twenty to forty-five minutes after the injection. Subcutaneous infiltration due to faulty technic in puncturing the vein produced momentary pain running up the arm. Slight induration without suppuration at the site of injection was the only sequel observed when the needle either slipped out of the vein or transfixed it. Within an hour of the injection there was sufficient decrease in the intensity of the pain in the chest to allow the patient to sleep comfortably. It had completely disappeared within forty-eight to seventy-two hours after the first injection. After slight stimulation during the injection in some cases, there was steady decrease in the coughing. Cyanosis remained entirely insignificant throughout the course of the disease in cases in which the injections were commenced from the first or second day of disease. In the majority of cases the respiration rate was lowered and the dyspnea much reduced. The pulse rate was slightly lowered. There was some rise of temperature after each injection, the rise decreasing gradually as the patient's condition improved. The temperature remained raised until the crisis occurred at the eighth or ninth day, just as in an untreated case of pneumonia. Arrest of the process of consolidation in cases treated from the start of the disease was remarkable. The congestive stage gradually regressed, so that by the time the crisis occurred the involved lobe was almost free from any signs of pneumonia. In two cases in which alcohol was not commenced until the fifth day of the disease and consolidation had already set in, resolution was rapid. Except in one case in which the leukocyte count rose from 8,500 to 12,800 after the first injection, there was a gradual decrease running parallel with the regression of the lung signs and the improvement in the general condition of the patient. The course of the disease, from the rise of temperature on the first day to the fall on the eighth or ninth day by crisis, was the same in cases treated with alcohol, in those partially treated with alcohol and in those not treated by alcohol. The complications, i. e., lung abscess and acute nephritis, were beneficially affected by the alcohol. The subjective condition of the patient was immediately changed from that of the acute distress of the pneumonic patient to one of ease and sleep. The foregoing treatment is now being applied by one of the authors to postanesthetic and postoperative lung complications.

Journal of Laryngology and Otology, London

50: 897-976 (Dec.) 1935

Obstructions of the Trachea. L. Colledge.—p. 897.
Id. F. C. Ormerod.—p. 903.

Journal of Neurology and Psychopathology, London

16: 97-192 (Oct.) 1935

Neurologic Complications of the Third Molar Tooth. C. B. Henry. —p. 97.
Crystal Formations in Spinal Fluid and Their Diagnostic Significance. K. Zeiner-Henriksen.—p. 111.
Meningeal Lipomas in Foramen Magnum. W. Misch.—p. 123.
Recurrent Attacks of Prolonged Sleep: Case. M. S. Jones.—p. 130.

Journal of State Medicine, London

43: 683-744 (Dec.) 1935

The Harben Lectures, 1935: Problems of Nutrition and Growth. P. Armand-Delille.—p. 683.
*Injection of Histamine in Rheumatism. C. G. Eastwood.—p. 720.
Histamine Ionization Therapy. Dorothy Potter.—p. 729.
Some Aspects of the Carrier Problem. D. H. Haler.—p. 738.

Injection of Histamine in Rheumatism.—Eastwood states that beneficial effects were obtained with histamine in instances of almost all types of rheumatism, though not in every individual case. Patients having periarticular arthritis of the small joints of the hand, impairment of the grip and cold and cyanotic fingers gave the best response. The worst type of response to the drug was in cases in which no circulatory disturbance was demonstrable. The most immediate and constant effect was flushing. A second effect of histamine was the relief of pain with an increased range of movement of the joints. Both of these generally occurred within two or three minutes of the injection, although occasionally there was a latent period of some hours. Histamine relieved vasomotor symptoms. The patients experienced a sensation of general bodily warmth even when erythema of the skin was not observed. This feeling of heat lasted some hours and then tended to subside, a lesser degree remaining for several days. While the face was flushed, fulness and throbbing of the head were common, sometimes actual headache and sometimes dizziness. These effects lasted from a few minutes up to half an hour. It was found that headache might almost always be avoided if the patient lay down for half an hour following the injection. With histamine there was usually a fall in blood pressure of from 20 to 40 mm. of mercury, returning to normal within five minutes. If the blood pressure was initially high, the fall tended to be somewhat greater. With thiohistamine the blood pressure was but rarely affected, and then only by the larger doses. The foregoing effects were constant and usual, but sweating, drowsiness, appetite, well being, temperature, pulse, respiration and paresthesia were less constant

and occurred in a few cases, and therefore the author discusses them briefly. Whether the effects of histamine treatment are lasting and whether it can replace other forms of treatment have yet to be shown.

Lancet, London

2: 1335-1392 (Dec. 14) 1935

*Use of Gonadotropic Hormones in Treatment of Imperfectly Migrated Testes. A. W. Spence and E. F. Scowen.—p. 1335.
Bovine Phthisis: Its Incidence in Northeast Scotland: County Cases. A. S. Griffith and J. Smith.—p. 1339.
Aminopyrine Hypersensitivity and Agranulocytosis. A. B. Hansen and C. Holten.—p. 1342.
Treatment of Acute Frontal Sinusitis. T. B. Layton.—p. 1345.
Undescended Ovaries. R. M. Walker.—p. 1346.

Use of Gonadotropic Substance in Undescended Testes.—Spence and Scowen treated thirty-three patients, aged 4 to 26 years, having imperfectly migrated testes with the gonadotropic substance from pregnancy urine given in doses of 500 rat units intramuscularly twice a week. Both testes descended into the scrotum in six of the bilateral cases and one testis in four, while in two cases descent has not occurred. In eleven of the nineteen unilateral cases the testis descended, and in two cases with the testis high in the neck of the scrotum a low position in the scrotum was assumed. Successful results were obtained within periods ranging from two weeks to fourteen and one-half months. The testes have remained in the scrotum in nine of eleven cases followed for from one to eleven months after cessation of treatment.

Medical Journal of Australia, Sydney

2: 675-706 (Nov. 16) 1935

Glimpse at the History of Therapeutics. R. D. Rudolph.—p. 675.
Historical Survey of the Progress of Medicine in Relation to Cardiovascular Disease. E. F. Gartrell.—p. 681.
*Propagation of Virus of Epidemic Influenza on Developing Egg. F. M. Burnet.—p. 687.

2: 707-738 (Nov. 23) 1935

Medical Research in Australia. W. J. Penfold.—p. 707.
Intrabiliary Rupture of Hydatid Cysts of Liver: Report of Five Cases. A. L. Carrodus.—p. 714.

2: 739-768 (Nov. 30) 1935

Otologic Manifestations of Neurologic Disease. D. G. Carruthers.—p. 739.
Primitive Medicine Men. A. P. Elkin.—p. 750.
The Suva Native Medical School. J. Barrett.—p. 757.

Propagation of Virus of Epidemic Influenza on Developing Egg.—Burnet propagated the virus of epidemic influenza for fourteen generations on the chorio-allantoic membrane of the developing egg. It was initiated by inoculating eggs with a membrane filtrate made from nasal mucosa and lung of ferret 10, which was killed during the secondary temperature rise of a typical attack of ferret influenza. For passage, membranes were removed from the egg to sterile solution of sodium chloride in a petri dish and examined for lesions with a lens against a dark background. Membranes with distinct lesions were then placed in broth tubes and left in the refrigerator till convenient. To prepare the inoculum the membrane was ground with quartz powder and 4 or 5 cc. of broth. This was centrifugated at fairly high speed in an angle centrifuge for from five to ten minutes and the supernatant fluid inoculated. Characteristic lesions were produced, the macroscopic and microscopic features of which are described. It is highly probable that in the near future attempts at immunization of human beings with killed or attenuated influenza virus will be made, and that the egg membrane technic may find an important practical application. It allows growth of influenza virus which is certainly free from contaminating viruses or bacteria and should almost certainly provide a much more suitable "raw material" for the preparation of antigens than either ferret or mouse tissues.

Chinese Medical Journal, Peiping

49: 1075-1182 (Oct.) 1935

Lympho-Epithelioma of Nasopharynx with Involvement of Nervous System. Y.-L. Ch'eng.—p. 1075.
Injured Back of the Working Man. J. B. G. Muir.—p. 1092.
Value of H and O Agglutination in Serologic Diagnosis of Typhoid Fever. R. C. Robertson and H. Yu.—p. 1117.

Journal de Médecine de Lyon

16: 749-782 (Dec. 5) 1935

Appendicitis Grave or Complicated by Acute Peritonitis: Preventive or Curative Treatment with Anticolibacillary Serum as Adjuvant of Intervention. H. Vincent.—p. 749.
Large Heart with Ventricular Polysystole: Acute Form. P. Veil.—p. 759.
"Lost Drainage" in Abdominal Surgery. F. Delvaux.—p. 769.

Presse Médicale, Paris

43: 2001-2024 (Dec. 11) 1935

*Gastric Crisis of Tabes. L. Binet and J. Parrot.—p. 2001.
"Medical Drilling" of Hip. F. Coste and J. Fauvet.—p. 2002.
Fermented Pap of Whole Flour. Leon-Meunier.—p. 2004.

Gastric Crisis of Tabes.—Binet and Parrot studied the chloride metabolism in a patient having constant vomiting from a tabetic gastric crisis. They observed the chloride loss, the level of blood chloride and the variations in blood urea. From these observations they concluded that the gastric crisis of tabes causes a condition of lowered blood chloride which perhaps explains the extreme depression of these patients. The crisis develops in three phases: nervous phase or dechloridation, humoral phase or stabilization of low chloride level, and critical phase or repair. It is not sufficient to treat the nervous factor by intravenous injections of atropine; rechloridation also is indicated. If begun on the first day, it should be sufficient to compensate for the chloride loss.

Schweizerische medizinische Wochenschrift, Basel

66: 25-60 (Jan. 11) 1936. Partial Index

Roentgen Diagnosis in Obstetrics. E. Anderes.—p. 26.
Experiences with Nitrous Oxide-Ether Anesthesias. C. Brunner.—p. 28.
*Colposcopy as Method of Choice for Early Diagnosis of Carcinoma of Uterine Cervix. A. Bucher.—p. 30.
Technic of Irradiation of Vaginal Cancer. E. Held.—p. 37.
Venopathia Saltans (So-Called Thrombophlebitis Migrans) as Sequel of Chronic Empyema of Gallbladder. C. Henschen.—p. 38.
*Incidence of Puerperal Infections After Bath and Coitus During Last Two Weeks Before Delivery. T. Koller.—p. 48.

Colposcopy for Early Diagnosis of Cervical Carcinoma.—Bucher points out that the appearance of a vaginal discharge that has a reddish tint, the intermediate hemorrhages, or hemorrhages occurring after examination, after coitus or after forced defecation are late symptoms; they indicate the terminal stage. Pain also is a late symptom, for by the time pain is felt the carcinoma has already spread to the pelvic connective tissue, the peritoneum, the sheath of the psoas and the ischiadic plexus. Carcinoma of the uterine cervix does not produce subjective symptoms during the early stage. He thinks that the early diagnosis of carcinoma of the uterine cervix is possible only if every woman beyond the age of 30 is subjected once a year to a thorough examination. The usual methods of examination are bimanual palpation and examination with the speculum. Palpation is the more valuable of these two methods, because the wall of infiltration surrounding the carcinoma can be better felt than seen. If it cannot be decided whether an area is carcinomatous or not, an exploratory excision is advisable but is justified only if there is reason to suspect the presence of carcinoma. The author admits that for the practitioner it is extremely difficult to recognize the nature of changes in the uterine cervix merely by means of palpation and by inspection with the eye. A reliable serologic diagnosis would be of great help, but, although there are some promising methods, none have as yet produced satisfactory practical results. For this reason hope lies chiefly in the improvement of the local methods of examination and in this connection the author mentions Schiller's iodine test and colposcopy, which should be used together. Colposcopy is the stereoscopic observation of the cervix with centered illumination and considerable magnification. Colposcopy reveals that the cervical carcinoma does not necessarily appear in the form of nodules but rather in the form of peculiar epithelial changes. Hinselmann designates these stages as matrix regions. They appear as leukoplakia as well as under other forms. Later examination often reveals leukoplakia where previously other changes had existed. Histologic studies indicate the uniformity of the various changes, in that they reveal atypical epithelium with a tendency to cornification and to growth into the connective tissue and into the glands.

Approximately 20 per cent of the so-called matrix regions prove to be carcinomas. They are the symptomless incipient stages and their recognition by colposcopy demonstrates the great value of this diagnostic method. The matrix regions are removed by shallow amputation of the cervix. Thus cure is effected without great surgical risk and without danger of relapse. Moreover, the uterus retains its functional capacity (menstruation and eventually pregnancy).

Puerperal Infections After Bath Before Delivery.—To determine whether a tub bath or coitus during the last two weeks before delivery will increase the incidence of febrile temperatures and of inflammatory complications during the puerperal period, Koller studied 2,750 spontaneous deliveries and 922 cases in which the delivery had to be terminated by a vaginal or abdominal operation. In the women who had had a tub bath, conditions were less favorable only in those who had to undergo a cesarean operation. However, the differences were not entirely outside the margin of error. In the group of women who had had coitus the febrile temperatures were more frequent among the spontaneous deliveries as well as among the surgical deliveries; however, the inflammatory complications did not show a higher incidence. The author concludes from his observations that a tub bath or coitus during the last two weeks before delivery do not justify an unfavorable prognosis for the puerperium. He hopes that this problem will be investigated further.

66: 61-84 (Jan. 18) 1936. Partial Index

Necessity of Critical Investigation of Anamnesis in Case of Expert Testimony in Matters of Compensation. R. Bing.—p. 61.
*Treatment of Delirium Tremens. H. Steck.—p. 68.
Theoretical Considerations Regarding Jejunal Ulcer After Gastro-Enterostomy. P. Decker.—p. 73.
*Type Diagnosis of Paratyphoid B Group. C. Hallauer.—p. 77.

Treatment of Delirium Tremens.—According to Steck, the treatment of uncomplicated delirium tremens is done best without the use of narcotics and without alcohol. He shows that the mortality rate is high in institutes in which alcohol is given to patients with delirium tremens, whereas it is low in institutes in which no alcohol is given. With regard to the use of narcotics, he says that patients with delirium tremens are generally refractory to moderate doses and that the doses which would be effective involve the danger of impairment of the centers of the medulla oblongata. In this connection he mentions morphine and scopolamine, the use of which has been discontinued because it involves danger. However, chloral hydrate and paraldehyde are still being used. The author considers inadvisable confinement in the cell as well as the use of straps and strait-jackets, but he has found the use of a bed with a grating quite helpful. The grating should be constructed of ropes rather than of metal. If this type of bed is used, the patient can move freely in his bed and is not likely to injure himself. The author points out that, if the use of this type of bed does not seem desirable, paraldehyde may eventually be tried. However, in cases in which careful watching is possible, he considers an insulin carbohydrate treatment advisable. Insulin has been used in the treatment of delirium tremens because of its action on the hepatic disturbance that exists in these patients, but the author noted that it also has a general sedative effect. To be sure, a hypoglycemic shock must be carefully avoided, because patients with delirium are predisposed to epileptic attacks. The patient should be given in the morning from 5 to 10 units of insulin; after an hour this dose should be repeated and after another hour 60 Gm. of sugar should be given diluted in water or coffee. If necessary, the sugar may be given after the first dose of insulin. The author attaches especial importance to the dietetic treatment. If the treatment is carried on without the use of narcotics, large quantities of fluids should be given, such as coffee with milk, tea and fruit juices. The food should provide large amounts of carbohydrates but should be deficient in fats and proteins. The circulation and the cardiac action must be supported by the administration of heart stimulants. In cases in which the renal function fails, venesection with subsequent infusion of sodium chloride solution may eventually be helpful, or salyrgan may be tried cautiously.

Type Diagnosis of Paratyphoid B Group.—Hallauer shows that the type differentiation is important, as it gives information about the course the infection will take. An infection caused by the Schottmüller type usually takes the course of an abdominal paratyphoid. The incubation period lasts from three to six days and the characteristic symptoms are splenic tumor, roseola, leukopenia and slow pulse. It persists for about twenty-one days and carriers are quite frequent in this type. The paratyphoid of Breslau type, however, is usually characterized by an acute gastro-enteritis; it lasts only a few days and carriers are rare. The Schottmüller type of infection is usually transmitted by direct contact, and thus sporadic cases are more frequent than group infections, whereas in the case of infections with the Breslau type mass infections predominate. The author made bacteriologic studies in two minor epidemics of paratyphoid. The first epidemic could be traced to a paratyphoid carrier in a dairy. In the course of two months the author observed twenty-six cases. The incubation period averaged six days and the symptoms were usually like those of typhoid and persisted for about eighteen days. The feces contained paratyphoid B bacilli as a rule up to the third week, but in two cases they were still present after seven and eight weeks. All strains obtained in pure culture were of the Schottmüller type. The second paratyphoid epidemic occurred in an institution and could be traced to infected milk. The cases occurred almost simultaneously and all presented the aspects of an acute gastro-enteritis lasting only a few days. The author examined five specimens of feces; in two he detected B. enteritidis Breslau and in the others he found paracolon bacilli. After a strain had been found to belong to the paratyphoid B group it was subjected to type differentiation. The cultural method of type differentiation was done by testing the strain with *d*-tartaric acid and with rhamnose and by watching for the formation of mucous walls on the agar plates. The Schottmüller type was found to react negatively to tartaric acid and to rhamnose and was found to form a wall of mucus, whereas the bacilli of the Breslau type showed the opposite behavior in all three tests. The serologic type differentiation was done first on the slide and eventually also by detailed agglutination tests with type specific serums.

Pediatria, Naples

44: 1-96 (Jan. 1) 1936. Partial Index

Favism in Hemophilic Child: Case. G. Macciotta.—p. 1.
Behavior of Diastase in Cerebrospinal Fluid of Epileptic Children. G. Bettinardi and A. Macchi.—p. 7.
*Globular Resistance in Tuberculosis in Children. M. Andreucci.—p. 18.
Biologic Activity of Leukocytes. M. Laureati.—p. 31.
Primary Diphtheria of Vulva: Cases. A. Maccari.—p. 59.

Resistance of Erythrocytes in Tuberculosis in Children.—Andreucci made determinations of the resistance of the erythrocytes in the blood of thirty-two children of both sexes, ranging from 3 to 12 years of age and suffering from tuberculosis in different stages of evolution and in any one of the following localizations: lungs, bones, lymph nodes or peritoneum. For evaluation of his results he used Viola's formula for the maximal, mean and minimal globular resistance of the erythrocytes (R1, R2 and R3, respectively). The maximal resistance of the erythrocytes (R1) was greatly increased in all the cases of the author. The mean resistance (R2), regardless of the localization of tuberculosis, was increased in the most serious cases of the disease and normal or diminished in the few cases of patients who were recovering. The minimal resistance (R3) was normal in all cases. The author states that his results point out that the reticulo-endothelial system is insufficient in tuberculosis. Its insufficiency is manifested by the defective hemocatheretic action of the system on the erythrocytes, especially on those already mature but recently entered into the circulation and which constitute the group of the first resistance. In grave cases of tuberculosis the insufficiency acts also on the erythrocytes that constitute the group of the second resistance; that is, those which have been forming the mass of the blood longer than those of the former group. However, in grave cases of tuberculosis in patients of general good condition and with a tendency to improve, the insufficiency of the reticulo-endothelial system does not manifest itself, owing to the fact that in these cases the system

has regained its normal activity. These facts explain the constant increase of the first globular resistance in all the cases of this group, that of the second resistance in the most serious cases and the normal values of the second resistance in cases tending to improve, and that of the third resistance in all cases.

Policlinico, Rome

43: 1-52 (Jan. 1) 1936. Medical Section

"Embolotherapy" in Pulmonary Tuberculosis. G. Triolo.—p. 1.
*Value of Methods for Investigation of Functions of Pancreas and Exocrine Functions of Pancreas in Diabetes Mellitus. G. Barbera and G. Adinolfi.—p. 27.
Bilateral Collapsotherapy: Cases. L. Barchi and G. Leoncini.—p. 42.

Functions of Pancreas in Diabetes Mellitus.—Barbera and Adinolfi determined the diastases and lipases in forty-nine patients suffering from different diseases. Twenty-one patients of the group had diabetes of either a mild or a grave form. The authors used Wohlgemuth and Rona-Melli's tests for determining the diastases in the blood and in the urine and the lipases in the blood, respectively. The results of the tests, which were verified by studies made on the duodenal secretion as well as by the observations made during operation in three cases and at necropsy in two cases, confirm their dependability. In relation to the results obtained in the group of diabetic patients the authors conclude that the content of diastases in the blood and in the urine is diminished and that of lipases in the blood increased in all cases of grave pancreatic diabetes. The results of the authors' work, as well as those reported by the use of Wohlgemuth and Rona-Melli's tests, indicate that in cases of pancreatic diabetes there is neither independence nor antagonism between the functions of the internal and external secretions of the pancreas but that grave lesions of the acinic portion of the gland coexist with those of the insular portion of the organ. The authors obtained satisfactory results by the administration of raw pancreas or of a preparation of dry pancreas. The treatment results in increasing the diastase content of the blood and the urine and diminishing the lipase content of the blood of the patients.

Prensa Médica Argentina, Buenos Aires

23: 85-154 (Jan. 8) 1936

*Determinations of Direct and Indirect Serum Bilirubin in Jaundice: Their Importance for Hepatobiliary Surgery. A. J. Bengolea, C. Velasco Suarez and A. E. Raices.—p. 85.
Test of Fine Stroke and Drop in Detection of Gold by New Reagent. L. Rossi.—p. 102.
Tonus of Heart: Its Importance in Relation to Pathogenic Treatment of Cardiac Diseases by Digitalis-Atropine-Quinidine. C. de Tommaso.—p. 104.
Pathogenesis of Intestinal Localization of Typhoid. L. Charosky.—p. 119.
Application of Theory of Conditioned Reflexes to Human Pathology. Paulina H. de Rabinovich.—p. 127.
Banti's Syndrome: Case. I. L. Resio.—p. 134.

Bilirubin in Blood Serum in Diseases of Biliary Tract.—Bengolea and his collaborators made determinations of the direct (biliary) and indirect (blood) bilirubin in the blood serum of seventy-six persons, including normal persons and patients suffering from jaundice or other pathologic conditions unrelated to the biliary tract. The author concludes that direct bilirubin does not exist in the blood serum of persons having a normal liver. Its presence in the blood indicates lesions of the trabeculae of the liver with formation of fissures through which direct bilirubin passes from the bile capillary to the blood capillary side. Fiessinger's schemes for interpretation of the mechanism of entrance of direct bilirubin into the blood in relation to the extension of the trabecular injury in the several types of jaundice are exact, but they should be modified in accordance with the fact of the existence of two types of bilirubin for a better interpretation of their significance. The presence of an increased amount of indirect bilirubin in the blood serum of icteric patients is an important index of extensive injury to the liver associated with functional insufficiency of the organ, provided the presence of hemolytic jaundice can be excluded. This statement was proved in the authors' cases by the fact that, while the figures of indirect bilirubin in the blood serum of icteric patients who were suffering from liver insufficiency were high, those in icteric patients who did not develop hepatic insufficiency were either normal or slightly increased.

Archiv für Dermatologie und Syphilis, Berlin

173: 317-434 (Jan. 4) 1936. Partial Index

Experimental Tuberculosis of Skin in Cats. K. H. Osterhage.—p. 317.
Histology of Fox-Fordyce Disease. F. Poór.—p. 336.
*Sensitization of Skin Against Autoserum and Autoblood. E. Bizzozero.—p. 342.
Problem of Direct and Indirect Action in Chemotherapy. K. A. Golowizina.—p. 347.
Differential Diagnosis of Acrosclerosis and of Raynaud's Disease. J. Sellei.—p. 352.

Sensitization of Skin to Autoserum.—Bizzozero describes studies on twenty-five patients to whom he administered intracutaneous injections of 0.2 or 0.5 cc. of their own serum. Often he made the injections several times at the same site, usually the external surface of the arm. In thirteen cases the reaction was negative; that is, no changes of any kind were observable after several injections and in three cases a slight temporary infiltration resulted, but in spite of this the author counts these three with the negative cases. In nine cases the reaction was positive. In these cases the first intracutaneous injection of autoserum as a rule caused no changes or only a mild infiltrate, which disappeared again in from twenty-four to forty-eight hours. Repeated injections at the same site, however, resulted in a slightly elevated, rather firm nodule, which persisted unchanged for from twenty to forty-five days and then subsided gradually. Moreover, if now the same quantity of serum was injected near the first nodule, there often developed within a few days a slightly erythematic nodule, which as a rule was somewhat less elevated and infiltrated than the first one. When these nodules were rubbed lightly, they swelled up and resembled pigmented urticaria. In three patients, in whom the nodules were especially prominent, he noted that, whereas previous to the autoserum injections the intracutaneous injection of autoblood caused not the slightest reaction, the same injection, when made in the surroundings of the nodules, caused a large wheal, which in the course of the following days developed into a deeply infiltrated, erythematous nodule. In one of the three patients the nodule appeared without the preliminary wheal formation. Injections with Locke-Ringer's solution, which served as control tests, gave negative results. The author made histologic studies on two nodules that had developed after the injection of autoserum. He observed a tuberculoid structure. He reaches the conclusion that substances are formed within the serum, either after it has been withdrawn from the organism or after it has been reinjected, which sensitize the skin of the patient against his own serum or against his own blood. The reaction can probably be traced to an antigen-antibody reaction.

Archiv für Gynäkologie, Berlin

160: 223-446 (Dec. 19) 1935. Partial Index

Clinical Aspects of Cesarean Operation. E. Puppel.—p. 223.
*Chorionepithelioma and Its Hormonology. A. Mandelstamm.—p. 239.
Biologic Action of Dihydro-Estrin-Benzoate. C. Clauberg and W. Breipohl.—p. 263.
Wedge of Theca Interna, a Typical Formation of Growing Mammalian Follicles. Erika von Moellendorff.—p. 278.
*Influence of Amniotic Fluid on Contractile Action of Uterus. P. I. Fomina.—p. 333.
*Question of Specificity of Ovarian Tumors Causing Masculation. W. Schiller.—p. 344.
*Placental Theory of Pathogenesis of Pregnancy Toxicoses, Particularly of Eclampsia. Ulesko-Stroganowa.—p. 431.

Chorionepithelioma and Its Hormonology.—Mandelstamm describes four cases of chorionepithelioma, the first of which was detected in time by the Aschheim-Zondek reaction and showed peculiar hormone conditions during the postoperative period. The third patient died and the others recovered. The latter were kept under observation for several years, the urine being subjected to the test from time to time. The author reviews a case that was recently described by Siegmund and, as far as the postoperative hormone reactions were concerned, resembled the first of the cases described by him. He points out that Siegmund gained the impression that the appearance of positive urine reactions following the removal of a cystic mole was caused by a storage of the hormones in lutein cysts and the author thinks that in his (first) case the positive urine reaction may likewise have been caused by a lutein cyst. He stresses that his own case and that described by Siegmund demonstrate how carefully the recurrence of positive urinary reactions must

be evaluated before they are considered an indication for irradiation or for surgical treatment. He does not consider a single positive reaction an adequate reason for a radical intervention and thinks that the extirpation of the ovaries in Siegmund's case was not justified after the character of the tumors had been recognized during the operation.

Influence of Amniotic Fluid on Contraction of Uterus.—Fomina reviews the literature on the genesis, composition and hormone content of the amniotic fluid and then reports his investigations on the influence of the amniotic fluid on the contractile action of the uterine musculature. He reaches the following conclusions: 1. The function of the amniotic epithelium and the excretory action of the fetal kidneys are the chief factors in the development of the amniotic fluid. 2. The amniotic fluid has a myotonic effect that increases as pregnancy progresses. 3. The amniotic fluid of a pregnancy that has been brought to term also exerts vasopressor actions. If the amniotic fluid is treated according to the method employed to extract the solution from the posterior lobe of the pituitary body, the dry residue that is obtained has myotonic as well as vasopressor characteristics and resembles extract of posterior pituitary. The author tested the extract from the amniotic fluid on the uterus of rabbits and of guinea-pigs and also investigated its influence on the blood pressure of rabbits and cats. He reaches the conclusion that the amniotic fluid as well as the extract obtained from it might eventually be used for the purpose of increasing the contractile action of the uterus.

Ovarian Tumors.—Schiller points out that the question as to the manner of the transformation of the sex characters under the influence of masculating tumors can be answered only on the basis of the observations and opinions regarding the determination of sex. He points out that, whereas for a while it was believed that sex is determined by the hormones, it has been asserted also that the primary fixation of sex takes place on the zygotic, chromosomal basis. Cytologic studies on the sex cells indicated the possibility of a progamous and of a syngamous fixation of sexuality; to be sure, the complete postembryonal development and maturation of the congenitally conditioned sex organs and sex characters is effected by the influence of hormones. The author points out that at present it is generally believed that, although the hormones exert a protective influence on the sexuality, the primary fixation of the specific sex characters nevertheless is lodged in the chromosomes. However, experiments have revealed that this so-called zygotic determination is by no means entirely fixed and unchangeable. In giving his attention to the masculation of women under the influence of some ovarian tumors, the author considers it doubtful that the progamously or syngamously determined chromosomal constitution can be influenced later by internal or external factors. He considers it more likely that the hormones produced by the tumor stimulate and develop latent primordiums. He stresses that a causal connection between tumor and masculation is definitely proved only if the symptoms of masculation disappear following the extirpation of the tumor. Considered from this point of view, there are only three types of tumors that are connected with masculation: (1) ovarian tumors the structure of which resembles the male gonad, (2) lutein tumors and (3) adrenal tumors. The author discusses these tumors and their action.

Placental Theory of Eclampsia.—Ulesko-Stroganowa describes experiments he conducted to determine the rôle of the placenta in the pathogenesis of eclampsia. He reached the conclusion that two factors must be considered in investigations on the pathogenesis of eclampsia: (1) the flooding of the maternal blood with decomposition products of the diseased placenta (in addition to the normal incretions and excretions of the placenta) and (2) the resistance of the maternal organism. The complex organic disorders that appear in toxicoses of pregnancy are the result of the placental decomposition products that have entered the blood stream. Similar disturbances may develop in severe infections, but in the ovaries only placental decomposition products and the hormones contained there effect specific changes. The ovarian changes consist in the appearance of numerous corpora lutea, particularly those of the pseudo type, rapid growth and destruction of follicles, luxuriant growth of the interstitial gland and severe hyperemia. Moreover, if the increased activity of the adrenals and of the thyroid is taken into consideration, it is evident that to the disturbances in the general condition there is added a disturbance in the correlation of the endocrine system. The author points out that recent studies have revealed an increased functional activity of the posterior lobe of the hypophysis in patients with eclampsia. He thinks that the organic changes which become manifest in edemas, extravasations of blood and necroses and which indicate a disturbance of the vascular system correspond with the observations described here.

Deutsche medizinische Wochenschrift, Leipzig

62: 89-128 (Jan. 17) 1936. Partial Index

Diagnosis of Hereditary Deafness. M. Schwarz.—p. 89.
*Studies on Twenty-Four Hour Rhythm of Blood Sedimentation Under Normal and Pathologic Conditions. A. Jores and H. Strutz.—p. 92.
Studies on Physiology of Gastric Mucus. A. Mahlo.—p. 96.
Therapy of Obesity. A. Strasser.—p. 97.
Problem of Pyelitis of Pregnancy. Stoeckel.—p. 99.

Twenty-Four Hour Rhythm of Blood Sedimentation.—Jores and Strutz point out that, since the form elements of the blood as well as some of the constituents of the plasma are subject to rhythmic fluctuations, it was to be expected that the sedimentation speed of the erythrocytes likewise undergoes rhythmic changes in the twenty-four hour period. They made investigations on persons with normal sedimentation values as well as on some with abnormal values. In those with normal sedimentation it was found that, if the withdrawal of the specimens is begun in the morning, the curve shows at first a decreasing tendency. Beginning with 10 a. m. the curve shows an upward trend, which reaches its maximum at about 4 p. m. Then there is a slight downward trend until 8 p. m., which in turn is followed by a slight and brief upward trend, to be followed again by a downward trend, which reaches its lowest point at about 6 a. m. In the cases showing abnormal values of the sedimentation speed, similar twenty-four hour curves were observed. The authors discuss the various factors that might play a part in the development of the rhythmic changes. They do not think that the food intake or physical exercise exerts an influence. Moreover, they were unable to corroborate the observations of Imanow and Basilewitsch, according to which the gastric motility influences the sedimentation speed. In further studies they found that the examination of different patients on the same day resulted in similar curves, whereas the examination of the same patient on different days resulted in different curves. They reach the conclusion that, in the practical employment of the sedimentation test, it is important to pay attention to the time of day at which the specimen is withdrawn, for a sedimentation value that is pathologic in the case of a morning specimen may still be normal if it concerns an evening specimen. Moreover, the authors observed two cases in which the sedimentation values were normal in the morning but pathologic in the evening. In both instances this proved to be of diagnostic significance. One patient had a lymphogranulomatosis, the other a postanginal sepsis. In the latter case the pathologic sedimentation values that appeared in the evening hours indicated a latent infectious process.

Deutsche Zeitschrift für Chirurgie, Berlin

246: 129-248 (Jan. 9) 1936. Partial Index

*Independent Isolated Tuberculosis of Rib Cartilage. W. Mühlfelder.—p. 129.
Osteochondritis of Sesamoid Bone of First Metatarsal Bone. A. Sidler.—p. 143.
*Sarcoma of Female Breast and Neoplasms of Male Breast in Material of Leipzig Surgical Clinic. J. Rose.—p. 151.
Gynecologic Peritonitis Caused by Rupture of Pyosalpinx or Tubo-Ovarian Abscess. H. Uebermuth.—p. 188.
Isolated Dislocation of Head of Fibula as Typical Sport Lesion. F. Strauss.—p. 212.

Isolated Tuberculosis of Rib Cartilage.—According to Mühlfelder, conditions necessary for embolic infection of a rib cartilage are furnished by the central localization of its arteries and, in particular, of its terminal arteries. The infection extends by invading the neighboring cartilaginous tissue. The structural characteristics of the cartilage render it particularly vulnerable to the toxic effect of the invader. The serpiginous mode of

extension of the lesion is responsible for the frequent recurrence after operative removal. Radical operative removal is the only successful therapy of this condition. In cases in which there is fistula formation the latter may first be curetted and the patient allowed to become afebrile. Analysis of the cases treated at the surgical clinic of the University of Basel disclosed that the condition is found with greatest frequency in the middle aged and that the seventh, ninth and eleventh ribs are most frequently involved. The clinical course was exceptionally mild. There was almost no localized pain. Henschen's observations on the blood supply of a rib cartilage and on the formation of a medullary cavity were substantiated in the course of operations on these patients. Henschen's operative method consists of first aspirating the liquid contents with a syringe and then destroying the lesion with a diathermy point.

Sarcoma of Breast.—Rose states that, among 660 cases of malignant neoplasm of the female breast in which operation was performed at the surgical clinic of the University of Leipzig between 1913 and 1934, there were sixteen (2.1 per cent) cases of sarcoma. Of the latter the most frequent form histologically was the spindle cell sarcoma. It is relatively benign, being characterized by slow growth and little tendency to metastasize. The round cell, the giant cell and the melanotic sarcomas occur far less frequently but run a rapid and malignant course. The average age incidence was 40 years. Lactation, menstruation, pregnancy and trauma were mentioned in four cases as contributing factors. The left breast was more frequently involved than the right. The sarcomatous breasts enlarged more rapidly than the carcinomatous breasts. Sarcoma does not exhibit a tendency to invade the pectoral muscles or the regional lymph nodes. They metastasize into the lungs or the liver by way of the circulation. The prognosis in sarcoma is more favorable than in carcinoma. There were 71 per cent permanent recoveries in their material among the former. Of a total of 745 observed cases of breast neoplasms, eighteen were of the male breast (2.4 per cent). Twelve of these were carcinomas, two sarcomas and four adenofibromas. The most frequent form was the simple solid carcinoma, while the adenocarcinoma and the medullary carcinoma were rare. The average age incidence was 59 years. Trauma was frequently mentioned in the histories. The right and left breasts were involved with the same frequency. The course of the growth is slow, the tumor seldom acquiring greater size than a plum or a small apple. The tumor is frequently attached to the skin and the pectoral muscles and presents an ulcerating surface. The regional lymph nodes have undergone malignant degeneration in 60 per cent of the cases. Body metastases were found in the vertebrae, ribs, pleura and lungs, liver and supraclavicular lymph nodes. Permanent cures were few. Only three patients survived the five year period. Sarcomas of the male breast are less frequent. When they occur as the spindle cell variety, they are characterized by slow growth and little tendency to metastasize. They were found to be free from metastases five years after the operation. The pericanalicular fibro-adenoma presents itself as a superficial, hard, freely movable tumor. It is benign and does not recur after extirpation. There were three cases of gynecomastia, one of which exhibited a definite heterosexual character dependent on the disturbance of the internal testicular secretion, while in the other two the disturbance was apparently in the primordium.

Klinische Wochenschrift, Berlin

15: 41-72 (Jan. 11) 1936. Partial Index

New Studies on Gas Exchange During Bathing. K. Kramer.—p. 41.
*Incidence in Human Subjects of Pulmonary Tuberculosis Caused by Bovine Type of Bacillus. W. Goeters.—p. 45.
Action of Insulinization on Hypercholesterolemia of Diabetic Patients Who Are Sensitive to Insulin and Those Who Are Resistant to It. E. Fenz.—p. 46.
Studies on Causes of Oxygen Deficiency in Tissues of Patients with Circulatory Disorders. F. Meyer.—p. 48.
Roentgenologic Studies on Rachitic Twins. W. Lehmann and F. Kuhlmann.—p. 50.
*Studies on Number of Leukocytes in Administration of Anorganic Arsenic. K. Halter.—p. 52.

Bovine Tubercle Bacilli and Human Tuberculosis.—Goeters described his studies on the strains of tubercle bacilli obtained at the pathologic institute in Leipzig from 135 cases of tuberculosis. In sixty-seven cases of chronic pulmonary tuberculosis with extensive cavity formation he detected the bovine type four times. He also detected the bovine type in two out of fifty-one aged persons with tuberculosis. In eleven cases of new pulmonary tuberculosis with nontuberculous intercurrent diseases and in six cases of miliary tuberculosis of the lungs he always detected the human type of tubercle bacillus. Thus there were six strains of the bovine type in a total number of 135 strains; that is, 4.4 per cent. The author points out that this incidence corresponds with that reported by Griffith and Munro (4 per cent), but he admits that in a selected necroptic material of 183 cases Griffith observed bovine infections in 29.7 per cent of the cases. In discussing the cases with bovine infections in his own material, the author points out that two of his cases concerned children who had a caseous tuberculosis of the mesenteric lymph nodes and an extensive intestinal tuberculosis; that is, the tuberculosis was probably an ingestive infection. In the two adults of the group with chronic pulmonary tuberculosis, droplet or dust infection in the course of contact with tuberculous cattle must have caused the infection with the bovine type. Neither of these two patients had intestinal ulcerations, and it can hardly be doubted that the infection was air borne. But although the infection by cattle seems most likely in these two cases, a transmission from man to man cannot be definitely excluded. Of the two aged persons in whom bovine bacilli were found, one had a mixed infection of the lungs (human and bovine types). However, simultaneously existing intestinal ulcerations contained only bovine bacilli. The author assumes that the bovine infection of the lungs was probably a metastatic process of the intestinal infection, for the tuberculous lesions in the intestine were older than those of the lungs. The other case of bovine tuberculosis in the group of aged persons concerned a rural laborer with a new aerogenic infection of the lungs without intestinal involvement.

Number of Leukocytes in Treatment with Arsenic.—Halter studied the number of leukocytes in twenty-six patients with psoriasis and in fifteen patients with various dermatoses, all of whom received injections of arsenic preparations. He observed a decrease in the leukocytes in thirteen of the patients with psoriasis and in eight of the fifteen patients with dermatoses, while an increase in the leukocytes was noted in only one of the patients with psoriasis and in none of the patients with dermatoses. The author thinks that such an incidence of reductions in the number of leukocytes cannot be said to be within the scope of physiologic fluctuations. Moreover, he does not think that it can be ascribed to a subsidence in the inflammatory processes existing at the beginning of the treatment, because the leukocytes were found to increase again after cessation of the treatment without there being a recurrence of the inflammatory manifestations but rather a further improvement. The author stresses that the reduction of leukocytes was noticeable in only some of the cases in which other signs of arsenic intoxication (gastro-intestinal disturbances, keratoses and so on) appeared, but it did appear in cases in which these other toxic symptoms were not evident; that is, it may be the only indication of a toxic action of arsenic. He concludes that in patients who receive arsenic treatment the number of leukocytes should be regularly controlled.

15: 73-112 (Jan. 18) 1936. Partial Index

Pigment Hormone and Antidiuretic Principle of Hypophysis. G. Böttger.—p. 73.
Allergy and Water Economy. B. Paul.—p. 76.
Immunization Against Diphtheria in Warsaw. L. Hirszfeld and M. Łaçki.—p. 79.
*Remarks on Method for Determination of Vitamin C in Urine. R. Ammon and K. Hinsberg.—p. 85.
Extirpation of Spleen and Cutaneous Reaction in Experimental Syphilis of Rabbits. A. Kropatsch and A. Fessler.—p. 88.
*Gustatory Disturbances in Influenza. W. Schwanke.—p. 93.

Determination of Vitamin C in Urine.—Ammon and Hinsberg show that the various chemical methods for the determination of vitamin C in the urine are incorrect. The capacity of the urine to bind iodine is not suited for the quantitative determination of the vitamin C content, because cevitamic acid is not the only reducing substance in the urine. An addition of potassium iodide reduces the iodine number greatly, but the true vitamin C content is not determined. The authors think that the indophenol method likewise produces excessive

values, but they believe that the methylene blue method according to Martini and Bonsignore discloses values that are nearer to the real ones. Attempts to develop other methods, in which the removal of the reducing substances and the coloration of the urine were the most important factors, have failed so far. The authors studied also the vitamin C content of the placenta. The iodine test as well as the indophenol method indicated relatively large quantities of cevitamic acid, and the methylene blue method revealed the presence of 1 mg. per hundred grams. The authors reach the conclusion that all reduction methods are only makeshifts and must remain unsatisfactory, because there is always considerable uncertainty as to whether other substances are included in the determination. The problem of vitamin C metabolism can be solved definitely only by means of a reaction that is specific for the vitamin and permits a quantitative determination.

Gustatory Disturbances in Influenza.—Schwanke reports that he observed four patients who developed disturbances in the sense of taste in the course of influenza. The patients complained that no matter whether they ate sweet, sour or other foods they always experienced a bitter taste. They found this extremely unpleasant. The olfactory sense was not impaired in these patients. The severity of the influenza had no effect on the appearance or on the duration of the gustatory disturbance. The author emphasizes that these gustatory disturbances are of an entirely different nature from those that develop in case of lingual diseases (glossitis, atrophic tongue and so on), for, while the latter are due to local disease of the tongue, those occurring in influenza must be due to a disease of the innervating nerves or of the gustatory center, because the tongue showed no pathologic changes and the excretion of bitter substances (as in the case of some intravenous injections) likewise could not be proved. The author points out that influenza is often accompanied by mild forms of neuritides and he thinks that the gustatory disturbances correspond to the paresthesias observed in neuritides. He admits that in one of his patients a circumscribed form of encephalitis existed. He concludes that gustatory disturbances may occur in all diseases that lead to neuritides or to disturbances of the central nervous system. Whether they are more frequent in influenza than in other disorders will require further investigations.

Wiener Archiv für innere Medizin, Vienna

28: 1-160 (Dec. 20) 1935. Partial Index

Method of Withdrawal of Gastric Juice at Short Intervals: Clinical Examination of Pancreatic Function. W. Berger, J. Hartmann and H. Leubner.—p. 1.
Roentgenologic Analysis of Constipation. R. Pape.—p. 21.
Depth Action and Dirigibility of Percussion Beats. A. Winkler.—p. 41.
Clinical Aspects of Extrasystolic Allorhythmia. C. Bloch.—p. 55.
Metabolic Hormone and Insulinogenic Substance of Anterior Lobe of Hypophysis. K. J. Anselmino and F. Hoffmann.—p. 117.
*Origin of Diastasuria in Pneumonia. I. Pavel, I. Radvan and B. Volovici.—p. 133.

Origin of Diastasuria in Pneumonia.—Pavel and his associates studied the influence of the body temperature on the course of diastasuria and diastasemia in patients with pneumonia. They observed pathologic diastasemia and diastasuria but these disorders did not run parallel with the temperature. In the majority of cases they observed the pathologic diastasuria in the terminal stage of the disease or in the period of crisis. They observed also that the diastase content of the blood and of the urine run parallel, a factor that excludes the possibility of a renal involvement in diastasuria. After ascertaining that the leukocyte ferments can be excluded as a causal factor of diastasuria, the authors think that there remains no other explanatory factor than the development of a pancreatitis during pneumonia. Functional studies in the course of pneumonia and anatomic observations on the pancreas of one patient lead them to conclude that the pancreas is impaired in cases of pneumonia. On the basis of the fact that the pathologic diastase values appear simultaneously with the glycoregulatory disturbance, they believe that there is a connection between these two manifestations and think that the glycoregulatory disturbances might be explained as the result of pancreatic lesions, without the involvement of other organs. In evaluating the practical importance of this problem, they state that among the infectious processes that cause an exacerbation of diabetes mellitus pneumonia plays the most important part and that in order to avoid this exacerbation it is necessary to increase the insulin dosage considerably. They point out that such cases have been designated as insulin resistant, but they are of the opinion that this condition can be explained differently. They think that the increased diastasuria is the sign of an excessive permeability of the cells in the region of the pancreas. Moreover, they believe that the increased permeability applies not only to amylase but also to other ferments, particularly trypsin, and that a disturbance of the insulin by excessive amounts of trypsin is an important factor in the larger insulin requirements.

Wiener klinische Wochenschrift, Vienna

49: 33-64 (Jan. 10) 1936. Partial Index

Epilepsy and Therapy. O. Marburg.—p. 33.
Transurethral Electrotomy in Surgery of Prostate. H. Rubritius.—p. 36.
*Processes of Immunization in Hyperthyroidism. J. Bauer, E. Kunewälder and F. Schächter.—p. 39.
*Abnormal Shortness of Allantoic Stalk and Its Results. G. Politzer.—p. 40.
Formation of Metastases in Otogenic Pyemia During Childhood. I. Hofer.—p. 42.
New Observations on Circulatory Conditions in Lower Extremities and Their Clinical Importance. R. Singer.—p. 44.

Processes of Immunization in Hyperthyroidism.—Bauer and his associates observed that, if rabbits are given subcutaneous injections of small doses of thyroxine intermittently over a period of from six to eight weeks they develop a resistance to thyroxine and finally no longer react to the injections with a reduction in the lipase and in weight. The serum of the animals that had become resistant to thyroxine, in contradistinction to the serum of normal rabbits, gave a complement fixation reaction with thyroxine. The authors state that this phenomenon is analogous to observations which other investigators made with gonadotropic substance. The observations they had made on rabbits induced the authors to test the serum of patients with disorders of the thyroid for its complement fixation capacity, by using thyroxine as the antigen. They found that the serums of patients with exophthalmic goiter produce a complement fixation reaction with thyroxine; the reaction was positive in the severe cases but negative in the milder cases and in cases in which treatment had been successful. Of fifty controls without thyroid disease, forty-seven gave a negative reaction. Of the three positive serums in this group, two were from patients with a positive Wassermann reaction and one from a patient with hysteria. Since it is known that antibodies against nonprotein substances have only a relative specificity and as a rule react also to related substances, the authors employed the complement fixation reaction not only with thyroxine as antigen but also with diiodotyrosine. They obtained the same reactions with diiodotyrosine as with thyroxine. There were no serums that reacted to only one of the two substances. In evaluating the significance of their observations, the authors are convinced that the antibodies, which are demonstrable in the serum of patients with hyperthyroidism by means of the complement fixation reaction, have nothing in common with the antithyroid protective substances of the blood, for the latter substances are reduced in patients with severe hyperthyroidism, whereas the complement fixation reaction becomes positive in these patients. Moreover, they think that the factors which elicit the complement fixation reactions with thyroxine and diiodotyrosine differ from the "antihormones" which Collip postulated as an explanation for the resistance that develops against endocrine therapy. They concede that they are as yet unable to explain why an immunity reaction is produced by a physiologic incretion that circulates in the organism in increased quantities, but they emphasize that this phenomenon is truly an immunity reaction. Their studies indicated also that diiodotyrosine is not an antagonist of thyroxine, as had been assumed by some. They believe that it is a preliminary stage of the hormone which has an analogous although much weaker action than thyroxine.

Abnormal Shortness of Allantoic Stalk and Its Results.—Politzer describes a human embryo, which was approximately 8 mm. in length and in which the axis had been turned 90 degrees. He shows that the curvature of the embryonal body was caused by an abnormal shortness of the allantoic stalk.

He suggests that this deformity may be the preliminary stage of congenital scoliosis, torsions of the vertebral column and other defects.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

80: 281-356 (Jan. 25) 1936

Puberty Psychosis. L. Van Der Horst.—p. 282.
Pneumatosis Cystoides Intestini Hominis. W. A. Levy.—p. 290.
Stenosis of Isthmus of Aorta. E. Van Leeuwen.—p. 296.
*Lead Poisoning in Cigar Makers. G. H. W. Jordans, A. Zijlmans and J. Broos.—304.
*Striae of Nail in Arsenical Polyneuritis. R. A. Mees.—p. 312.

Lead Poisoning in Cigar Makers.—Jordans and his associates describe the case histories of six cigar makers who were suffering from lead poisoning and state that this occurrence has not yet been reported in the literature. They think that lead poisoning of more or less degree is frequent in cigar makers and that pale, unhealthy looking persons of this trade justify the suspicion of chronic lead poisoning. The source of the poisoning is found in the zinc plates on which the cigar makers cut the tobacco. The authors conclude that the use of zinc plates for this purpose should be forbidden by law and that they should be replaced by wooden plates, which offer technical and hygienic advantages.

Striae of Nail in Arsenical Polyneuritis.—In a patient suffering from polyneuritis produced by the administration of arsenic, Mees found that the typical transverse white striae of the nails, appearing some time after the ingestion of arsenic, contain six times as much arsenic as the ordinary nail substance. He states that the degree of sharp definition of the striae is related to the administration of one or more doses of arsenic, one dose producing sharply delimited striae while several doses cause the striae to be more diffuse. The forensic interest of the striae lies in the fact that the time of administration of the arsenic may be deducted from their appearance.

Acta Medica Scandinavica, Stockholm

87: 189-364 (Dec. 30) 1935. Partial Index

Biologic Research on Diagnosis of Latent Malaria. S. G. Livierato and C. C. Salata.—p. 189.
Observations with Oleothorax Treatment. A. Gullbring.—p. 213.
*Distribution of Platelets in Peripheral Blood. H. K. Beecher.—p. 311.
*Posthemorrhagic Uremia. L. Meyler.—p. 313.
Influence of Low Molecular Hydrolysates of Animal Organs on Reticulo-Endothelium and Phagocytosis. A. Egoroff and M. Laptewa-Popowa.—p. 345.
*Nerve Symptoms in Anemia Achylica Simplex. L. Abramson.—p. 358.

Distribution of Platelets in Peripheral Blood.—Beecher lists the physiologic number of platelets per cubic millimeter of blood according to the various methods of determination, showing that some investigators consider the physiologic number to be 200,000 while others give values up to 900,000. He thinks that these wide variations are due to the fact that some fundamental condition has been disregarded. He describes observations that may account in part for the discrepancy between the various methods. The studies referred to were made with the Sandison-Clark method. A window, which is placed in a rabbit's ear, makes possible observations at high magnification of the arterioles, capillaries and venules and of their contents in an intact animal and over a period of months. In observing the platelets in the circulating blood at a magnification of 400 diameters, a strikingly variable distribution of platelets was seen. A field with a moderately active circulation may be watched for a minute or longer and only an occasional platelet is seen passing through, while at other times there are schools of them. From these observations the author concludes that one factor in the inaccuracy of platelet counting is the uneven distribution of platelets in the peripheral blood.

Posthemorrhagic Uremia.—Meyler describes a form of extrarenal uremia that he observed in patients who became comatose after severe gastric hemorrhage. He first reports the observations on one patient in whom the necropsy revealed an ulcer with an open artery on the lesser curvature of the stomach. In order to gain a better insight into this form of uremia, experiments were made on guinea-pigs and further clinical observations were made on several other patients. On the basis of these observations the author reaches the conclusion that posthemorrhagic uremia is due to the fact that large quantities of protein are destroyed and that the kidneys are not equal to the task of excreting the excess nitrogen. He points out that this is a type of extrarenal uremia of which uremia due to hypochloremia and uremia caused by burns are the best known examples. He shows that all forms of extrarenal uremia are really originally "production uremias," for first there is an excessive production of protein and then the problem is whether the organism has a sufficient quantity of fluid at its disposal for the excretion of the excess of the nitrogenous waste products. It appears that people with gastric hemorrhage get into a serious condition of dehydration and it is shown that the dehydration leads to the often enormous toxic destruction of protein. That the uremia is not directly caused by the anemia was proved on guinea-pigs which were made anemic, were given considerable amounts of fluid by subcutaneous administration and did not pass into a state of uremia. Though the author does not suggest that in case of severe gastric hemorrhage death is caused by uremia, he thinks that the latter condition is nevertheless a serious complication, and he considers it advisable to administer large quantities of fluid in case of severe loss of blood.

Nerve Symptoms in Simple Achylous Anemia.—After mentioning a number of investigators who observed acroparesthesia in patients with simple anemia and after citing one author who among ninety-five patients with funicular myelitis observed ten with a hypochromatic blood picture, Abramson points out that according to some authors paresthesias occur in from 33 to 50 per cent of patients with hypochromic anemia. His attention was directed to this problem by observations on a patient whose history and appearance suggested a simple anemia but who had slight symptoms of myelopathy. In view of the latter symptom, pernicious anemia was thought of and the blood was examined. However, the examination of the blood as well as the further development of the disease confirmed the diagnosis of simple anemia. After this case the author examined eleven cases of simple anemia for possible nerve symptoms and he detected them in six cases. Ascending paresthesias in arms and legs were present in three, but these paresthesias disappeared completely in two and improved greatly in one, together with the improvement in the blood status. In two other cases the nerve symptoms had the character of mild polyneuritis, while in the remaining case some of the reflexes were abolished or weakened, but there were no paresthesias. The author emphasizes that all these cases presented the blood picture as well as the other symptoms of simple anemia and that the symptoms of anemia as well as the nerve symptoms disappeared in response to iron therapy. He thinks that the nerve symptoms of simple anemia often escape detection because they are usually mild.

Upsala Läkareförenings Förhandlingar, Uppsala

41: 191-382 (Dec. 16) 1935

Contribution to Knowledge of Relations of Yohimbin to Vegetative Nervous System. P. Weger.—p. 191.
Contribution to Pharmacologic Properties of Jalapin and Cambogia. N. Hollander.—p. 231.
New Observations and Principles Concerning Diabetes Research and Their Practical Application to Therapy of Diabetes. J. Möllerström.—p. 287.
*Contribution to Knowledge of Local Combination Forms of Cancer and Tuberculosis in Alimentary Canal. O. Säfwenberg.—p. 329.
Experiences in Use of Evipan Sodium. H.-G. Skarby.—p. 345.
Investigations on Animal Production of Vitamin C. V. Kalnins.—p. 355.
Pseudospasm of Stomach, Produced by Musculature of Stomach Wall: Preliminary Report. L. Lönnerblad.—p. 363.
Roentgen Examination of Accessory Sinuses of Nose. S. Ribbing.—p. 369.

Cancer and Tuberculosis in Alimentary Canal.—Säfwenberg presents twenty-one cases of coincident cancer and tuberculosis of the stomach and thirteen of the cecum, and two additional cases of combined cancer and tuberculosis of the stomach and one of the cecum, all three diagnosed at the time the operations were performed. He says that in the stomach, in which these cases usually occur in the cancer age, the cancer is as a rule primary and constitutes a favorable milieu for development of the tuberculosis, as in his second instance of implantation tuberculosis, and presumably in the first instance in which the tuberculosis may have originated by the hematogenous route from the probable primary focus in the lungs. In the cecum the combination occurs at an earlier age and the tuberculosis is often primary, as in the third case described, in which the tuberculosis is thought to have spread by the blood stream from the glands in the neck.